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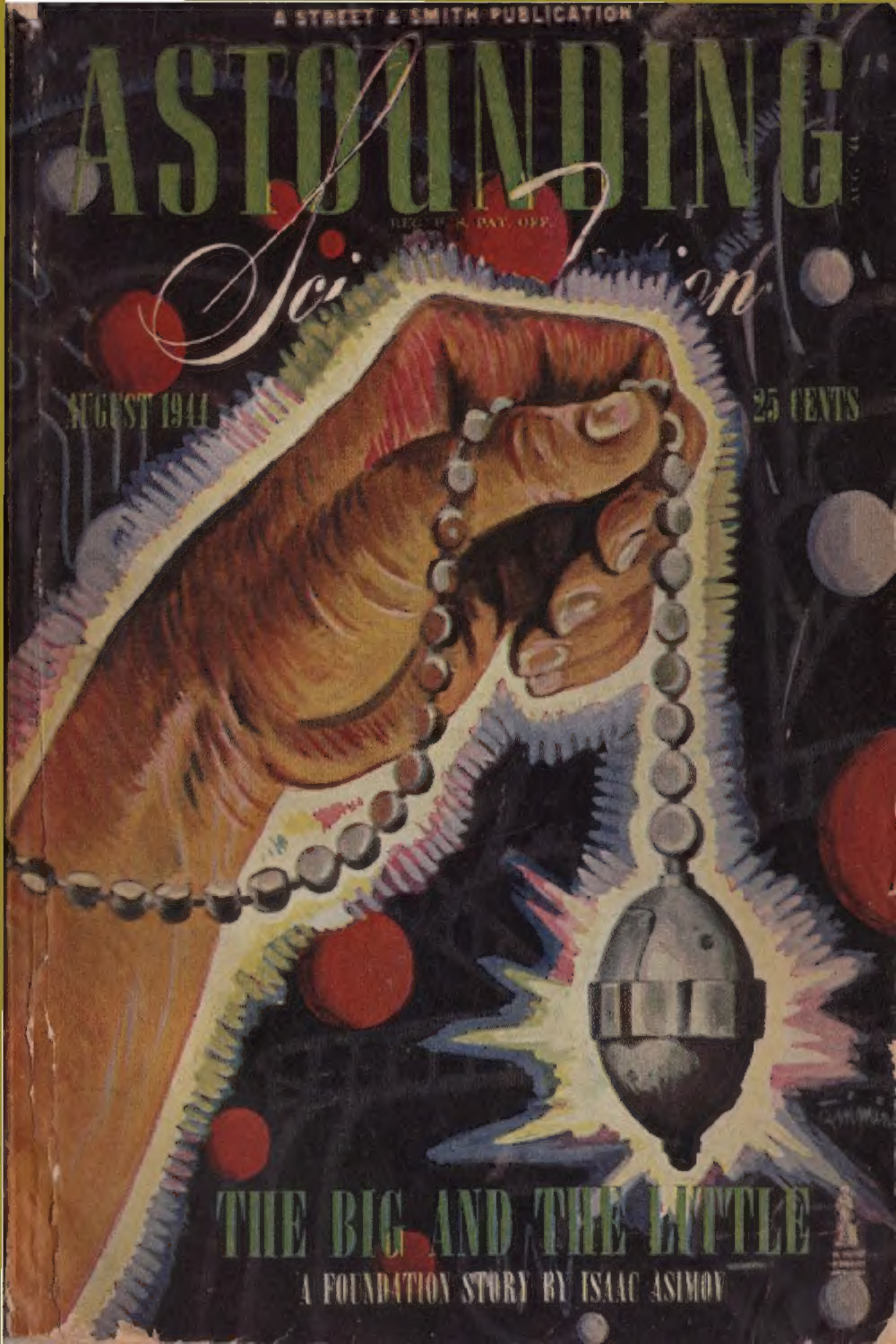

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A FOUNDATION STORY BY ISAAC ASIMOV

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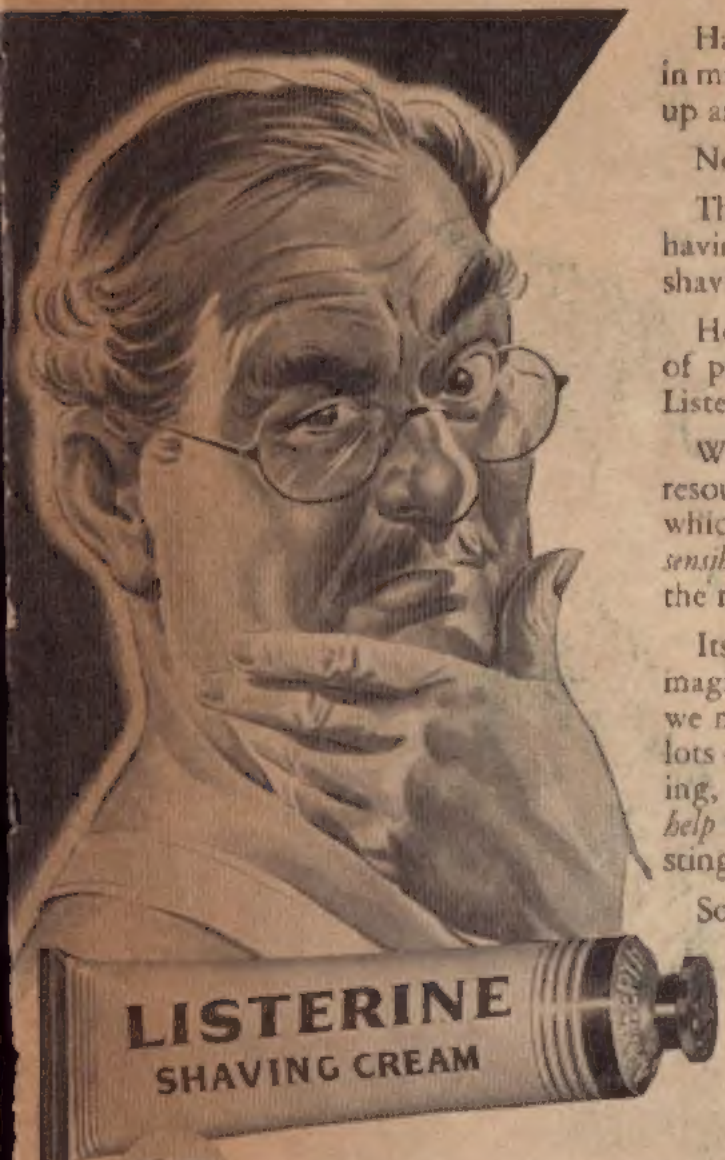

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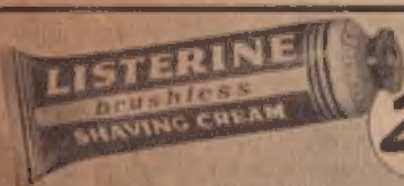

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Illustrations by Kramer, Orban and Williams

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JOHN W. CAMPBELL, JR.

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$2.50 per Year in U. S. A. Printed in [redacted] the U. S. A. 25c per Copy

NEXT ISSUE ON SALE AUGUST 15, 1944

Education

It costs something like thirty thousand dollars to train an Air Force pilot, somewhat less to educate and train navigators, bombardiers, gunnery officers, ground-crew mechanics, tank-maintenance men, and the like. The tens of billions of dollars being poured into the war by the United States Government aren't all—or even nearly all—going to buy guns, tanks, fighting planes and ships. A stupendous sum is spent to buy training planes, ground-school equipment, educational demonstration equipment, gasoline and parts for training planes and tanks. More millions and hundreds of millions are poured out in the task of training highly specialized electronics technicians, in training instructors to train men, in developing new methods of education that will turn an illiterate into a competent soldier in six weeks instead of six years.

It's a curious phenomenon of human nature that a club is so effective a means of getting knowledge inside the hard bone case of the skull of homo sapiens. War is supplying that club. The result is an educational program on a scale no nation ever considered as a remote possibility in peacetime. No population would stand for the enormous expenditure of wealth for the mere education of young men by the national government. It's inconceivable that the National Budget should carry an item of twenty billion dollars for technical education in times of peace.

In times of war, the club enforces wisdom in a hurry. Millions of young, intelligent men—men selected for their own, personal inherent ability to learn, not for the abilities their parents may have displayed in accumulating the world's goods—are being given an education that no more than a few thousands could afford—and those thousands who could afford it would, quite probably, include a very sizable proportion who would (a) be unable to absorb it, (b) never use it, or (c) never apply it after taking advantage of the opportunity.

With the program of education this nation has been forced into—an education in the use of the most advanced, most highly technical power machinery, the most intricate accomplishments of physical sciences—we will end the war with victory, and an army of high-level technicians such as never existed in all history. The effect on the world—naturally, most particularly on the United States—is unequivocably beyond calculation. The world has had a sort of halfway machine age rather severely limited by lack of high-level technicians. Electronic controls in industry, for instance, have lagged far, far behind possibilities, because of lack of trained servicemen. The radio mechanic, generally speaking, has a sound, practical working knowledge of radio broadcast type circuits, and electron-tube applications—but that does not include saw-tooth, square-wave, and similar curious types of AC wave generators.

It doesn't include some of the strange inversions of vacuum tube circuits when they're used in counter circuits, timing circuits, and the like. Men with far more knowledge of the theory of electronics were needed—and the Army needed them, too. They'll be available after the war.

Incidentally, the electronics business has already passed, in dollar volume of production, the pre-war automobile industry.

Technicians trained for servicing Army and Navy planes will form an available group of really competent servicemen for private plane maintenance work. It's all very fine to talk about tens of thousands, even millions of private planes in the post-war world—but the idea is completely impracticable if the only available service organizations are automobile mechanics. It was, to some extent, possible for the horseshoe expert, the village blacksmith, to service the early automobiles. But the blacksmith can't handle the modern, highly evolved automobile, and the expert automobile mechanic can't handle the highly specialized controls systems of a modern plane. "George," the automatic pilot, is several steps beyond the range of George, the first-rate automobile expert.

This army of trained, high-level technicians our Army has educated will answer a lot of industry's prayers—and will, at the same time, force industry forward by the pressure of their demands for work of the caliber they are trained to handle. The electronics-weapons specialists won't demand a job in electronics-weapons work—but he will want a job in service work on electronics. Control systems that are just a wee bit below the level of independent thought are possible—and we now have men capable of independent thought in the field of electronics capable of servicing such equipment.

A less formal, but equally drastic "educational program" has been at work on the industrial firms themselves. War's taught them an enormous number of basic lessons in the theory of how-to-make-it-quicker. "Quicker" usually meaning with less manpower, fewer operations, and better results. War demands enormous quantities, to be used under the most brutal operating conditions imaginable. A mechanism fully sturdy enough for five years of civilian, peacetime operation, a good commercial structure—will burn out or break down in a day of military work. A de luxe passenger car is a fragile beauty, incompatible with Burma jungle trails. A fine-quality radio receiver becomes a shambles in an immeasurably brief instant when exposed to a slight backdraft from the muzzle blast of a 16" rifle.

Industry's been educated too—in the cheap, quick manufacture of immensely rugged equipment in immense quantity.

Somehow or other, though, our economic system must undergo an equally drastic education. The average productivity per man per year has been raised immensely. The quantity and quality available is far higher. Economists haven't yet worked out a completely satisfactory formula to make the economic equivalent of the mathematical equation $1 = 1$ come out even. Somehow, the average consumption per family per year must equal the average production per family. Mathematically, $1 = 1$ is very simple indeed. It's a shame that making $130{,}000{,}000 = 130{,}000{,}000$ is so much harder to work out.

THE EDITOR.

The Big and the Little

by ISAAC ASIMOV

The Empire was dying—but even a dying colossus is a terrible enemy. The Foundation was little, and had only little things. Kitchen knives of atomic flame—against the stupendous, ancient generators of the Empire!

Illustrated by Orban

"Three Dynasties molded the Beginning: the Encyclopedists, the Mayors, and the Traders—" ("Essays on History," *Ligurn Vier.*)

I.

Jorane Sutt put the tips of carefully-manicured fingers together and said, "It's something of a puzzle. In fact—and this is in the strictest confidence—it may be another one of Hari Seldon's crises."

The man opposite felt in the pocket of his short Smyrnian jacket for a cigarette, "Don't know about that, Sutt. As a general rule, poli-

ticians start shouting 'Seldon crisis' at every mayoralty campaign."

Sutt smiled very faintly, "I'm not campaigning, Mallow. We're facing atomic weapons, and we don't know where they're coming from."

Hober Mallow of Smyrno, master trader, smoked quietly, almost indifferently. "Go on. If you have more to say, get it out." Mallow never made the mistake of being overpolite to a Foundation man. He might be an Outlander, but a man's a man for a' that.

Sutt indicated the trimensional star-map on the table. He adjusted the controls and a cluster of some half-dozen stellar systems blazed red.

"That," he said quietly, "is the Korellian Republic."

The trader nodded, "I've been there. Stinking rathole! I suppose you can call it a republic but it's always someone out of the Argo family that gets elected Commdor each time. And if you ever don't like it—*things* happen to you." He twisted his lip and repeated, "I've been there."

"But you've come back, which hasn't always happened. Three trade ships, inviolate under the Conventions, have disappeared within the territory of the Republic in the last year. And those ships were armed with all the usual nuclear explosives and force field defenses."

"What was the last word heard from the ships?"

"Routine reports. Nothing else."

"What did Korell say?"

Sutt's eyes gleamed sardonically. "There was no way of asking. The Foundation's greatest asset throughout the Periphery is its reputation of power. Do you think we can lose three ships and *ask* for them?"

"Well, then, suppose you tell me what you want with *me*."

Jorane Sutt did not waste his time in the luxury of annoyance. As secretary to the mayor, he had held off opposition councilmen, jobseekers, reformers, and crackpots who claimed to have solved in its entirety the course of future history as worked out by Hari Seldon. With training like that, it took a good deal to disturb him.

He said methodically, "In a moment. You see, three ships lost in the same sector in the same year can't be accident, and atomic power can be conquered only by more atomic power. The question automatically arises: if Korell has atomic weapons, where is it getting them from?"

"And where does it?"

"Two alternatives. Either the Korellians have constructed them themselves—"

"Farfetched!"

"Very! But the other possibility is that we are being afflicted with a case of treason."

"You think so?" Mallow's voice was cold.

The secretary said calmly, "There's nothing miraculous about the possibility. Since the Four Kingdoms accepted the Foundation Convention, we have had to deal with considerable groups of dissident populations in each nation.

Each former kingdom has its pretenders and its former noblemen, who can't very well pretend to love the Foundation. Some of them are becoming active, perhaps."

Mallow was a dull red. "I see. Is there anything you want to say to *me?* I'm a Smyrnian."

"I know. You're a Smyrnian—born in Smyrno, one of the former Four Kingdoms. You're a Foundation man by education only. By birth, you're an Outlander and a foreigner. No doubt your grandfather was a baron at the time of the wars with Anacreon and Loris, and no doubt your family estates were taken away when Sef Sermak redistributed the land."

"No, by Black Space, no! My grandfather was a blood-poor son-of-a-spacer that died heaving coal at starving wages before the Foundation. I owe nothing to the old regime. But I was born in Smyrno, and I'm not ashamed of either Smyrno or Smyrnians, by the Galaxy. Your sly little hints of treason aren't going to panic me into licking Foundation spittle. And now you can either give your orders or make your accusations. I don't care which."

"My good master trader, I don't care an electron whether your grandfather was King of Smyrno or the greatest pauper on the planet. I recited that rigmarole about your birth and ancestry to show you that I'm not interested in them. Evidently, you missed the point. Let's go back now. You're a Smyrnian. You know the Outlanders. Also, you're a trader and one of the best. You've been to Korell and you know the Korellians. That's where you've got to go."

Mallow breathed deeply, "As a spy?"

"Not at all. As a trader—but with your eyes open. If you can find out where the power is coming from— I might remind you, since you're a Smyrnian, that two of those lost trade ships had Smyrnian crews."

"When do I start?"

"When will your ship be ready?"

"In six days."

"Then that's when you start. You'll have all the details at the Admiralty."

"Right!" The trader rose, shook hands roughly, and strode out.

Sutt waited, spreading his fingers gingerly and rubbing out the pressure; then shrugged his shoulder and stepped into the mayor's office.

The mayor deadened the visiplate, and leaned back. "What do *you* make of it, Sutt?"

"He could be a good actor," said Sutt, and stared thoughtfully ahead.

It was evening of the same day, and in Jorane Sutt's bachelor apartment on the twenty-first floor of the Hardin Building, Publis Manlio sipped wine slowly.

It was Publis Manlio in whose slight aging body were fulfilled two great offices of the Foundation. He was Foreign Secretary in the mayor's cabinet, and to all the outer suns, barring only the Foundation

itself, he was Primate of the Church, Purveyor of the Holy Food, Master of the Temples, and so forth almost indefinitely in confusing but sonorous syllables.

He was saying, "But he agreed to let you send out that trader. It is a point."

"But such a small one," said Sutt. "It gets us nothing immediately. The whole business is the crudest sort of stratagem, since we have no way of foreseeing it to the end. It is a mere paying out of rope on the chance that somewhere along the length of it is a noose."

"True. And this Mallow is a capable man. What if he is not an easy prey to dupery?"

"A chance that must be run. If there is treachery, it is the capable men that are implicated. If not, we need a capable man to detect the truth. And Mallow will be guarded. Your glass is empty."

"No, thanks, I've had enough."

Sutt filled his own glass and patiently endured the other's uneasy reverie.

Of whatever the reverie consisted, it ended indecisively, for the primate said suddenly, almost explosively, "Sutt, what's on your mind?"

"I'll tell you, Manlio." His thin lips parted, "We're in the middle of a Seldon crisis."

Manlio stared, then said softly, "How do you know? Has Seldon appeared in the Time Vault again?"

"That much, my friend, is not necessary. Look, reason it out. Since the Galactic Empire abandoned the Periphery, and threw us on our own, we never had an opponent who possessed atomic power. And now, for the first time, we have one. That seems significant even if it stood by itself. And it doesn't. For the first time in over seventy years, we are facing a major domestic political crisis. I should think the synchronization of the two crises, inner and outer, puts it beyond all doubt."

Manlio's eyes narrowed, "If that's all, it's not enough. There have been two Seldon crises so far, and both times the Foundation was in danger of extermination. Nothing can be a third crisis till that danger returns."

Sutt never showed impatience. "That danger is coming. Any fool can tell a crisis when it arrives. The real service to the state is to detect it in embryo. Look, Manlio, we're proceeding along a planned history. When the Foundation was first established, Hari Seldon worked out the historical probabilities that faced us. We *know* that some day we're to rebuild the Galactic Empire. We *know* that it will take a thousand years or thereabouts. We *know*, by Seldon's own sono-records left us in the Time Vaults, that these years will be spotted with definite crises.

"Now the first crisis came fifty years after the establishment of the Foundation, and the second, thirty years later than that. Almost seventy-five years have gone now. It's time, Manlio, it's time."

Manlio rubbed his nose uncertainly, "And you've made your plans to meet this crisis?"

Sutt nodded.

"And I," continued Manlio, "am to play a part in it?"

Sutt nodded again, "Before we can meet the foreign threat of atomic power, you've got to put our own house in order. These traders—"

"Ah!" the primate stiffened, and his eyes grew sharp.

"That's right. These traders. They are useful, but they are too strong—and too uncontrolled. They are Outlanders, educated apart from religion. On the one hand, we put knowledge into their hands, and on the other, we remove our strongest hold upon them."

"If we can prove treachery—"

"If we could, direct action would be simple and sufficient. But that doesn't signify in the least. Even if treason among them did not exist, they would form an uncertain element in our society. They wouldn't be bound to us by patriotism or common descent, or even by religious awe. Under their secular leadership, the outer provinces, which, since Hardin's time, look to us as the Holy Planet, might break away."

"I see all that, but the cure—"

"The cure must come quickly, before the Seldon Crisis becomes acute. If atomic weapons are without and disaffection within, the odds might be too great." Sutt put down the empty glass he had been fingering, "This is obviously your job."

"Mine?"

"*I* can't do it. My office is appointive and has no legislative standing."

"The mayor—"

"Impossible. His personality is entirely negative. He is energetic only in evading responsibility. But if an independent party arose that might endanger re-election, he might allow himself to be led."

"But Sutt, I lack the aptitude for practical politics."

"Leave that to me. Who knows, Manlio? Since Salvor Hardin's time, the primacy and the mayoralty have never been combined in a single person. But it might happen now—if your job were well done."

And on the other end of town, in homelier surroundings, Hober Mallow kept a second appointment. He had listened long, and now he said cautiously, "Yes, I've heard of your campaigns to get direct trader representation in the council. But why *me*, Twer?"

Jaim Twer, who would remind you any time, asked or unasked, that he was in the first group of Outlanders to receive a lay education at the Foundation, beamed.

"I know what I'm doing," he said. "Remember when I met you first last year."

"At the Traders' Convention."

"Right. You ran that meeting. You had those red-necked oxen planted in their seats, then put them in your shirt-pocket and walked off with them. And you're all right with the Foundation masses, too. You've got *glamour*—or, at any rate, solid adventure-pubicity, which is the same thing."

"Very good," said Mallow, dryly. "But why now?"

"Because now's our chance. Do you know that the Secretary of Education has handed in his resignation? It's not out in the open yet, but it will be."

"How do you know?"

"That . . . never mind—" He waved a disgusted hand. "It's so. The Actionist party is splitting wide open, and we can murder it right now on a straight question of equal rights for traders; or rather, democracy, pro- and anti-."

Mallow lounged back in his chair and stared at his thick fingers, "Uh-uh. Sorry, Twer. I'm leaving next week on business. You'll have to get someone else."

Twer stared, "Business? What kind of business."

"Very super-secret. Triple-A priority. All that, you know. Had a talk with the mayor's own secretary."

"Snake Sutt?" Jaim Twer grew excited. "A trick. The son-of-a-spacer is getting rid of you. Mallow—"

"Hold on!" Mallow's hand fell on the other's balled fist. "Don't go into a blaze. If it's a trick, I'll be back some day for the reckoning. If it isn't, your snake, Sutt, is playing into our hands. Listen, there's a Seldon crisis coming up."

Mallow waited for a reaction but it never came. Twer merely stared. "What's a Seldon crisis?"

"Galaxy!" Mallow exploded angrily at the anticlimax. "What the blue blazes did you do when you went to school? What do you mean anyway by a fool question like that?"

The elder man frowned, "If you'll explain—"

There was a long pause, then, "I'll explain." Mallow's eyebrows lowered, and he spoke slowly. "When the Galactic Empire began to die at the edges, and when the ends of the Galaxy reverted to barbarism and dropped away, Hari Seldon and his band of psychologists planted a colony, the Foundation, out here in the middle of the mess, so that we could incubate art, science, and technology and form the nucleus of the Second Empire."

"Oh, yes, yes—"

"I'm not finished," said the trader, coldly. "The future course of the Foundation was plotted according to the science of psychohistory, then highly developed, and conditions arranged so as to bring about a series of crises that will force us most rapidly along the route to future Empire. Each crisis, each *Seldon* crisis, marks an epoch in our history. We're approaching one now—our third."

"Of course!" Twer shrugged, "I should have remembered. But I've been out of school a long time—longer than you."

"I suppose so. Forget it. What matters is that I'm being sent out into the middle of the development of this crisis. There's no telling what I'll have when I come back, and there is a council election every year."

Twer looked up, "Are you on the track of anything?"

"No."

"You have definite plans?"

"Not the faintest inkling of one."

"Well—"

"Well, nothing. Hardin once said: 'To succeed, planning alone is insufficient. One must improvise as well.' I'll improvise."

Twer shook his head uncertainly, and they stood, looking at each other.

Mallow said, quite suddenly, but quite matter-of-factly, "I tell you what, how about coming with me? Don't stare, man. You've been a trader before you decided there was more excitement in politics. Or so I've heard."

"Where are you going? Tell me that."

"Towards the Whassallian Rift. I can't be more specific till we're out in space. What do you say?"

"Suppose Sutt decides he wants me where he can see me."

"Not likely. If he's anxious to get rid of me, why not of you as well? Besides which, no trader would hit space if he couldn't pick his own crew. I take whom I please."

There was a queer glint in the older man's eyes, "All right. I'll go." He held out his hand, "It'll be my first trip in three years."

Mallow grasped and shook the other's hand, "Good! All fired good! And now I've got to round up the boys. You know where the *Far Star* docks, don't you? Then show up tomorrow. Good-by."

II.

Korell is that frequent phenomenon in history: the republic whose ruler has every attribute of the absolute monarch but the name. It therefore enjoyed the usual despotism unrestrained even by those two moderating influences in the legitimate monarchies: regal "honor," and court etiquette.

Materially, its prosperity was low. The day of the Galactic Empire had departed with nothing but silent memorials and broken structures to testify to it. The day of the Foundation had not yet come—and in the fierce determination of its ruler, the Commdor Asper Argo, with his strict regulation of the traders and his stricter prohibition of the missionaries, it was never coming.

The spaceport itself was decrepit and decayed, and the crew of the *Far Star* were drearily aware of that. The moldering hangars made for a moldering atmosphere, and Jaim Twer itched and fretted over a game of solitaire.

Hober Mallow said thoughtfully, "Good trading material here." He was staring quietly out the viewport. So far, there was little else to be said about Korell. The trip here was uneventful. The squadron of Korellian ships that had shot out to intercept the *Far Star* had been tiny, limping relics of ancient glory or battered, clumsy hulks. They had maintained their distance fearfully, and still maintained it, and for a week now, their requests for an audience with the local government had been unanswered.

Mallow repeated, "Good trading here. You might call this virgin territory."

Jaim Twer looked up impatiently,

and threw his cards aside, "What the devil do you intend doing, Mallow? The crew's grumbling, the officers are worried, and I'm—wondering."

"Wondering? About what?"

"About the situation. And about you. What are we doing?"

"Waiting."

The old trader snorted and grew red. He growled, "You're going it blind, Mallow. There's a guard around the field and there are ships overhead. Suppose they're getting ready to blow us into a hole in the ground."

"They've had a week."

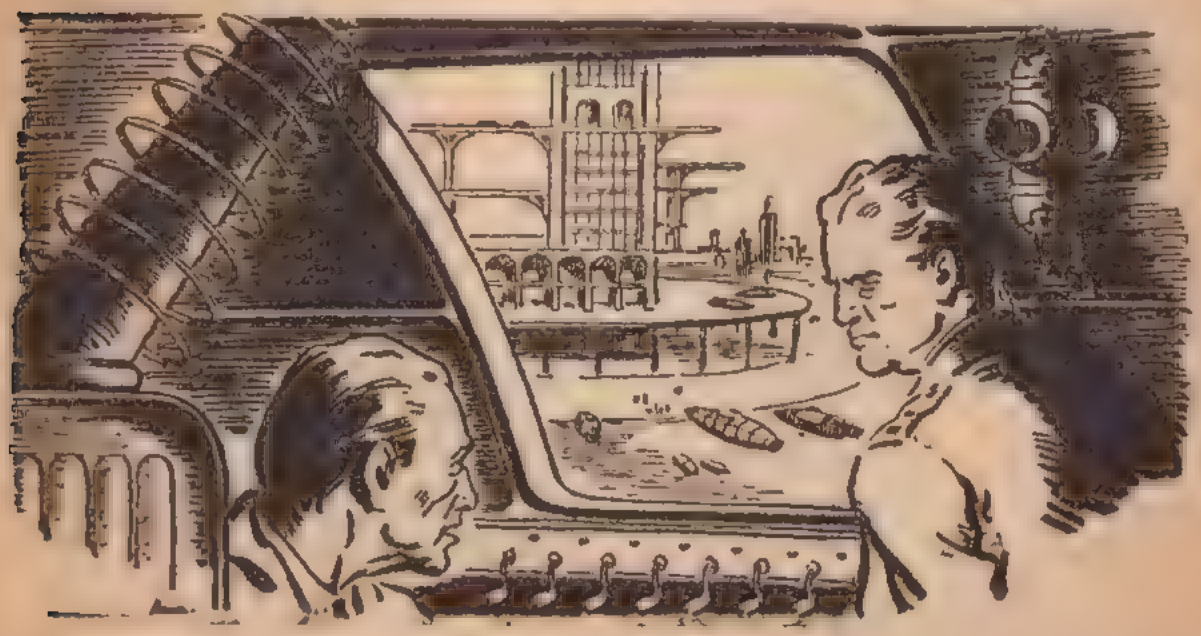
"Maybe they're waiting for reinforcements." Twer's eyes were sharp and hard.

Mallow sat down abruptly, "Yes, I'd thought of that. You see, it poses a pretty problem. First, we got here without trouble. That may mean nothing, however, for only three ships out of better than three hundred went a-glimmer last year. The percentage is low. But that may mean also that the number of their ships equipped with atomic power is small, and that they dare not expose them needlessly, until that number grows.

"But it could mean, on the other hand, that they haven't atomic power after all. Or maybe they have and are keeping undercover, for fear we know something. It's one thing, after all, to piratize blundering, light-armed merchant ships. It's another to fool around with an accredited ambassador of the Foundation when the mere fact of his presence may mean the Foundation is growing suspicious. Combine this—"

"Hold on, Mallow, hold on." Twer raised his hands. "You're just about drowning me with talk. What're you getting at? Never mind the in-betweens."

"You've *got* to have the in-be-



tweens, or you won't understand, Twer. We're both waiting. They don't know what I'm doing here, and I don't know what they've got here. But I'm in the weaker position because I'm one and they're an entire world—maybe with atomic power. I can't afford to be the one to weaken. Sure it's dangerous. Sure there may be a hole in the ground waiting for us. But we knew that from the start. What else is there to do?"

"I don't—Who's that, now?"

Mallow looked up patiently, and tuned the receiver. The visiplate glowed into the craggy face of the watch sergeant.

"Speak, sergeant."

The sergeant said, "Pardon, sir, the men have given entry to a Foundation missionary."

"A *what!*" Mallow's face grew livid.

"A missionary, sir. He's in need of hospitalization, sir—"

"There'll be more than one in need of that, sergeant, for this piece of work. Order the men to battle stations."

Crew's lounge was almost empty. Five minutes after the order, even the men on the off-shift were at their guns. It was speed that was the great virtue in the anarchic regions of the interstellar space of the Periphery, and it was in speed above all that the crew of a master trader excelled.

Mallow entered slowly, and stared the missionary up and down and around. His eye slid to Lieutenant Tinter, who shifted uneasily on one side, and to Watch sergeant Demen, whose blank face and stolid figure flanked the other.

The master trader turned to Twer and paused thoughtfully, "Well, then. Twer, get the officers here quietly, except for the co-ordinators and the trajectorian. The men are to remain at stations till further orders."

There was a five-minute hiatus, in which Mallow kicked open the doors to the lavatories, looked behind the bar, pulled the draperies across the thick windows. For half a minute he left the room altogether, and when he returned he was humming abstractedly.

Men filed in. Twer followed, and closed the door silently.

Mallow said quietly, "First, who let this man in without orders from me?"

The watch sergeant stepped forward. Every eye shifted. "Pardon, sir, it was no definite person. It was a sort of mutual agreement. He was one of us, you might say, and these foreigners here—"

Mallow cut him short, "I sympathize with your feelings, sergeant, and understand them. These men, were they under your command?"

"Yes, sir."

"When this is over, they're to be confined to individual quarters for a week. You yourself are relieved of all supervisory duties for a similar period. Understood?"

The sergeant's face never changed, but there was the slightest droop to his shoulders. He said, crisply, "Yes, sir."

"You may leave. Get to your gun-station."

The door closed behind him, and the babble rose.

Twer broke in, "Why the punishment, Mallow? You know what these Korellians do to captured missionaries."

"An action against my orders is bad in itself whatever other reasons there may be in its favor. No one was to leave or enter the ship without permission."

Lieutenant Tinter murmured rebelliously, "Seven days without action. You can't maintain discipline that way."

Mallow said icily, "*I* can. There's no merit in discipline under ideal circumstances. I'll have it in the face of death, or it's useless. Where's this missionary? Get him here in front of me."

The trader sat down, while the scarlet-cloaked figure was urged forward.

"What's your name, reverend?"

"Eh?" The scarlet-robed figure wheeled towards Mallow, the whole body turning as a unit. His eyes were blankly open and there was a bruise on one temple. He had not spoken, nor, as far as Mallow could tell, moved during all the previous interval.

"Your name, revered one?"

The missionary started to sudden feverish life. His arms went out in an embracing gesture. "My son—my children. May you always be in the protecting arms of the Galactic Spirit."

Twer stepped forward, eyes troubled, voice husky. "He's sick. Take him to bed, for Seldon's sake. He's badly hurt."

Mallow's great arm shoved him back, "Don't interfere, Twer, or I'll have you out of the room. Your name, revered one?"

The missionary's hands clasped in sudden supplication, "As you are enlightened men, save me from the heathen." The words tumbled out, "Save me from these brutes and darkened ones who raven after me and would afflict the Galactic Spirit with their crimes. I am Jord Parma, of the Anacreonian worlds. Educated at the Foundation; the Foundation itself, my children. I am a Priest of the Spirit educated into all the mysteries, who have come here where the inner voice called me." He was gasping, "I have suffered at the hands of the unenlightened. As you are Children of the Spirit; and in the name of that Spirit, protect me from them."

A voice broke in upon them, as the emergency alarm box clamored metallicly:

"Enemy units in sight! Instruction desired!"

Every eye shot mechanically upwards to the speaker.

Mallow swore violently. He clicked open the reverse and yelled, "Maintain vigil! That is all!" and turned it off.

He made his way to the thick drapes, that rustled aside at a touch, and stared grimly out.

Enemy units! Several thousands of them in the persons of the individual members of a Korellian mob. The rolling rabble encompassed the

port from extreme end to extreme end, and in the cold, hard light of magnesium flares the foremost straggled closer.

"Tinter!" the trader never turned, but the back of his neck was red. "Get the outer speaker working and find out what they want. Ask if they have a representative of the law with them. Make no promises and no threats, or I'll kill you."

Tinter turned and left.

Mallow felt a rough hand on his shoulder and he struck it aside. It was Twer. His voice was an angry hiss in his ear, "By Seldon, Mallow, you're bound to hold on to this man. There's no way of maintaining decency and honor otherwise. He's of the Foundation, and, after all, he—*is* a priest. These savages outside— Do you hear me?"

"I hear you, Twer." Mallow's voice was incisive. "I've got more to do here than guard missionaries. I'll do, sir, what I please, and, by Seldon and all the Galaxy, if you try to stop me, I'll tear out your stinking windpipe. Don't get in my way, Twer, or it will be the last of you."

He turned and strode past. "You! Revered Parma! Did you know that, by convention, no Foundation missionaries may enter the Korellian territory."

The missionary was trembling, "I can but go where the Spirit leads, my son. If the darkened ones refuse enlightenment, is it not the greater sign of their need for it?"

"That's outside the question, revered one? You are here against the law of both Korell and the Foundation. I cannot in law protect you."

The missionary's hands were raised again. His earlier bewilderment was gone. There was the raucous clamor of the ship's outer communication system in action, and the faint, undulating gabble of the angry horde in response. The sound made his eyes wild.

"You hear them? Why do you talk of law to me, of a law made by men? There are higher laws. Was it not the Galactic Spirit that said: Thou shalt not stand idly by to the hurt of thy fellowman. And has he not said: Even as thou dealest with the humble and defenseless, thus shalt thou be dealt with.

"Have you not guns? Have you not a ship? And behind you is there not the Foundation? And above and all about you is there not the Spirit that rules the universe?" He paused for breath.

And then the great outer voice of the *Far Star* ceased and Lieutenant Tinter was back, troubled.

"Speak!" said Mallow, shortly.

"Sir, they demand the person of Jord Parma."

"If not?"

"There are various threats, sir. It is difficult to make much out. There are so many—and they seem quite mad. There is someone who says he governs the district and has police powers, but he is quite evidently not his own master."

"Master or not," shrugged Mallow, "he is the law. Tell them that if this governor, or policeman, or whatever he is, approaches the ship alone, he can have Revered Jord Parma."

And there was suddenly a gun in his hand. He added, "I don't know what insubordination is. I have never had any experience with it. But if there's anyone here who thinks he can teach me, I'd like to teach him my antidote in return."

The gun swiveled slowly, and rested on Twer. With an effort the old trader's face untwisted and his hands unclenched and lowered. His breath was a harsh rasp in his nostrils.

Tinter left, and in five minutes a puny figure detached itself from the crowd. It approached slowly and hesitantly, plainly drenched in fear and apprehension. Twice he turned back, and twice the patently obvious threats of the many-headed monster urged him on.

"All right," Mallow gestured with the hand-blaster, which remained unsheathed. "Grun and Upshur, take him out."

The missionary screeched. He raised his arms and rigid fingers speared upwards as the voluminous sleeves fell away to reveal the thin, veined arms. There was a momentary, tiny flash of light that came and went in a breath. Mallow blinked and gestured again, contemptuously.

The missionary's voice poured out as he struggled in the two-fold grasp, "Cursed be the traitor who abandons his fellowman to evil and to death. Deafened be the ears that are deaf to the pleadings of the helpless. Blind be the eyes that are blind to innocence. Blackened forever be the soul that consorts with blackness—"

Twer clamped his hands tightly over his ears.

Mallow flipped his blaster and put it away. "Disperse," he said, evenly, "to respective stations. Maintain full vigil for six hours after dispersion of crowd. Double stations for forty-eight hours thereafter. Further instructions at that time. Twer, come with me."

They were alone in Mallow's private quarters. Mallow indicated a chair and Twer sat down. His stocky figure looked shrunken.

Mallow stared him down, sardonically. "Twer," he said, "I'm disappointed. Your three years in politics seems to have gotten you out of trader habits. Remember, I may be a democrat back at the Foundation, but there's nothing short of tyranny that can run my ship the way I want it run. I never had to pull a blaster on my men before, and I wouldn't have had to, if you hadn't gone out of line.

"Twer, you have no official position, but you're here on my invitation, and I'll extend you every courtesy—in private. However, from now on, in the presence of my officers or men, I'm 'sir,' and not 'Mallow.' And when I give an order, you'll jump faster than a third-class recruit just for luck, or I'll have you ironed in the sub-level

even faster. Understand?"

The party-leader swallowed dryly. He said, reluctantly, "My apologies."

"Accepted! Will you shake?"

Twer's limp fingers were swallowed in Mallow's huge palm. Twer said, "My motives were good. It's difficult to send a man out to be lynched. That wobbly-kneed governor or whatever-he-was can't save him. It's murder."

"I can't help that. Frankly, the incident smelled too bad. Didn't you notice?"

"Notice what."

"This spaceport is deep in the middle of a sleepy farm section. Suddenly a missionary escapes. Where from? He comes here. Coincidence? A huge crowd gathers. From where? The nearest city of any size must be at least a hundred miles away. But they arrive in half an hour. How?"

"How?" echoed Twer.

"Well, what if the missionary were brought here and released as bait. Our friend, revered Parma, was considerably confused. He seemed at no time to be in complete possession of his wits."

"Hard usage—" murmured Twer bitterly.

"Maybe! And maybe the idea was to have us go all chivalrous and gallant, into a stupid defense of the man. He was here against the laws of Korell and the Foundation. If I withhold him, it is an act of war against Korell and the Foundation has no legal right to defend *us*."

"That . . . that's pretty far-fetched."

The speaker blared and forestalled Mallow's answer: "Sir, official communication received."

"Submit immediately!"

The gleaming cylinder arrived in its slot with a click. Mallow opened it and shook out the silver-impregnated sheet it held. He rubbed it appreciatively between thumb and finger and said, "Teleported direct from the capital. Commdor's own stationery."

He read it in a glance and laughed shortly, "So my idea was far-fetched, was it?"

He tossed it to Twer, and added, "Half an hour after we hand back the missionary, we finally get a very polite invitation to the Commdor's august presence—after seven days of previous waiting. *I* think we passed a test."

III.

Commdor Asper was a man of the people, by self-acclamation. His remaining back-fringe of gray hair drooped limply to his shoulders, his shirt needed laundering, and he spoke with a snuffle.

"There is no ostentation here, Trader Mallow," he said. "No false show. In me, you see merely the first citizen of the state. That's what Commdor means, and that's the only title I have."

He seemed inordinately pleased with it all, "In fact, I consider that fact one of the strongest bonds between Korell and your nation. I

understand you people enjoy the republican blessings we do."

"Exactly, Commdor," said Mallow gravely, taking mental exception to the comparison, "an argument which I consider strongly in favor of continued peace and friendship between our governments."

"Peace! Ah!" the Commdor's sparse gray beard twitched to the sentimental grimaces of his face. "I don't think there is anyone in the Periphery who has so next to his heart the ideal of Peace, as I have. I can truthfully say that since I succeeded my illustrious father to the leadership of the state, the reign of Peace has never been broken. Perhaps I shouldn't say it"—he coughed gently—"but I *have* been told that my people, my fellow-citizens rather, know me as Asper, the Well-Beloved."

Mallow's eyes wandered over the well-kept garden. Perhaps the tall men and the strangely-designed but openly-vicious weapons they carried just happened to be lurking in odd corners as a precaution against himself. That would be understandable. But the lofty, steel-girdered walls that circled the place had quite obviously been recently strengthened—an unfitting occupation for such a Well-Beloved Asper.

He said, "It is fortunate that I have you to deal with then, Commdor. The despots and monarchs of surrounding worlds, which haven't the benefit of enlightened administration, often lack the qualities which would make a ruler well-beloved."

"Such as?" There was a cautious note in the Commdor's voice.

"Such as their concern for the best interests of their people. You, on the other hand, would understand."

The Commdor kept his eyes on the gravel path as they walked leisurely. His hands caressed each other behind his back.

Mallow went on smoothly, "Up to now, trade between our two nations has suffered because of the restrictions placed upon our traders by your government. Surely, it has long been evident to you that unlimited trade—"

"Free Trade!" mumbled the Commdor.

"Free Trade, then. You must see that it would be of benefit to both of us. There are things you have that we want, and things we have that you want. It asks only an exchange to bring increased prosperity. An enlightened ruler such as yourself, a friend of the people—I might say, a *member* of the people—needs no elaboration on that theme. I won't insult your intelligence by offering any."

"True! I have seen this. But what would you?" His voice was a plaintive whine. "Your people have always been so unreasonable. I am in favor of all the trade our economy can support, but not on your terms. I am not sole master here." His voice rose, "I am only the servant of public opinion. My people will not take commerce which carries with it a compulsory religion—"

Mallow drew himself up, "A compulsory religion?"

"So it has always been in effect. What your people ask is complete freedom of missionary effort; the establishment of religious schools; autonomous rights for all officers of the religion. Oh, no! Oh, no! The dignity of an independent people could never suffer it."

"Such has never been my suggestion," interposed Mallow.

"No?"

"No. I'm a master trader. Money is *my* religion. All this mysticism and hocus-pocus of the missionaries annoys me, and I'm glad you refuse to countenance it. It makes you more my type of man."

The Commdor's laugh was high-pitched and jerky, "Well said! The Foundation should have sent a man of your caliber before this."

He laid a friendly hand upon the trader's bulking shoulder, "But man, you have told me only half. You have told me what the catch is *not*. Now tell me what it *is*."

"The only catch, Commdor, is that you're going to be burdened with an immense quantity of riches."

"Indeed?" he snuffled. "But what could I want with riches? The true wealth is the love of one's people. I have that."

"You can have both, for it is possible to gather gold with one hand and love with the other."

"Now that, my young man, would be an interesting phenomenon, if it were possible. How would you go about it?"

"Oh, in a number of ways. The difficulty is choosing among them. Let's see. Well, luxury items, for instance. This object here, now—"

Mallow drew gently out of an inner pocket a flat, linked chain of polished metal. "This, for instance."

"What is it?"

"That's got to be demonstrated. Can you get a girl? Any young female will do. *And* a mirror, full length."

"Hm-m-m. Let's get indoors, then."

The Commdor referred to his dwelling place as a house. The populace undoubtedly would call it a palace. To Mallow's straightforward eyes, it looked uncommonly like a fortress. It was built on an eminence that overlooked the capital. Its walls were thick and reinforced. Its approaches were guarded, and its architecture was shaped for defense. Just the type of dwelling, Mallow thought sourly, for Asper, the Well-Beloved.

A young girl was before them. She bent low to the Commdor, who said, "This is one of the Commdora's girls. Will she do?"

"Perfectly!"

The Commdor watched carefully while Mallow snapped the chain about the girl's waist, and stepped back.

The Commdor snuffled, "Well. Is that all?"

"Will you draw the curtain, Commdor. Young lady, there's a little knob just near the snap. Will you move it upward, please? Go

ahead, it won't hurt you."

The girl did so, drew a sharp breath, looked at her hands, and gasped "Oh!"

From her waist as a source she was drowned in a pale, streaming luminescence of shifting color that drew itself over her head in a flashing coronet of liquid fire. It was as if someone had torn the aurora borealis out of the sky and molded it into a cloak.

The girl stepped to the mirror and stared, fascinated.

"Here, take this." Mallow handed her a necklace of dull pebbles. "Put it around your neck."

The girl did so, and each pebble, as it entered the luminescent field became an individual flame that leaped and sparked in crimson and gold.

"What do you think of it?" Mallow asked her. The girl didn't answer but there was adoration in her eyes. The Commdor gestured and reluctantly, she pushed the knob down, and the glory died. She left—with a memory.

"It's yours, Commdor," said Mallow, "for the Commdora. Consider it a small gift from the Foundation."

"Hm-m-m," the Commdor turned the belt and necklace over in his hand as though calculating the weight. "How is it done?"

Mallow shrugged, "That's a question for our technical experts."

"Well, it's only feminine frippery after all. What could you do with it? Where would the money come in?"

"You have balls, receptions, banquets—that sort of thing?"

"Oh, yes."

"Do you realize what women will pay for that sort of jewelry. Ten thousand credits, at least."

The Commdor seemed struck in a heap, "Ah!"

"And since the power unit of this particular item will not last longer than six months, there will be the necessity of frequent replacements. Now we can sell as many of these as you want for the equivalent in iron ore of one thousand credits. There's nine hundred percent profit for you."

The Commdor plucked at his beard and seemed engaged in awesome mental calculations, "Galaxy, how the dowagers will fight for them. I'll let them bid."

"Or," said Mallow, "working further at random, take our complete line of household gadgets. We have collapsible stoves that will roast the toughest meats to the desired tenderness in two minutes. We've got knives that won't require sharpening. We've got the equivalent of a complete laundry that can be packed in a small closet and will work entirely automatically. Ditto dish-washers. Ditto-ditto floor-scrubbers, furniture polishers, lighting fixtures . . . oh, anything you like. Think of your increased popularity, *if* you make them available to the public. Think of your increased quantity of . . . uh . . . worldly goods, if they're available as a government monopoly at nine hundred percent profit. It will be worth many times the money to them, and they needn't know what

you pay for it. Everybody's happy."

"Except you, it seems. What do *you* get out of it?"

"Just what every trader gets by Foundation law. My men and I will collect half of whatever profits we take in. Just you buy all I want to sell you, and we'll both make out quite well. *Quite* well."

The Commdor was enjoying his thoughts, "What did you say you wanted to be paid in—iron ore?"

"That, and coal, and bauxite. Also tobacco, pepper, magnesium, hardwood. Nothing you haven't got enough of."

"It sounds well."

"I think so. Oh, and still another item at random, Commdor. I could retool your factories."

"Eh? How's that?"

"Well, take your steel foundries. I have handy little gadgets that could do tricks with steel that would cut production costs to one percent of previous marks. You could cut prices by half, and still split extremely fat profits with the manufacturers. I tell you, I could show you exactly what I mean, if you allowed me a demonstration. Do you have a steel foundry in this city? It wouldn't take long."

"It could be arranged, Trader Mallow. But tomorrow, tomorrow. Would you dine with us, tonight?"

"My men—" began Mallow.

"Let them all come," said the Commdor, expansively. "A symbolic friendly union of our nations. It will give us a chance for further friendly discussion. But one thing," his face lengthened and grew stern,

"none of your religion. Not one word of religion."

"Commdor," said Mallow, dryly, "I give you my word that religion would cut my profits."

"Then that will do for now. You'll be escorted back to your ship."

The Commdora was much younger than her husband. Her face was pale and coldly formed and her black hair was drawn smoothly and tightly back.

Her voice was tart. "You are quite finished, my gracious and noble husband? Quite, *quite* finished? I suppose I may even enter the garden if I wish, now."

"There is no need for dramatics, Licia, my dear," said the Commdor, mildly. "The young man will attend at dinner tonight, and you can speak with him all you wish, and even amuse yourself by listening to all I say. Room will have to be arranged for his men somewheres about the place . . . the stars grant they be few in numbers."

"Most likely they'll be great hogs of eaters who will eat meat by the quarter-animal and wine by the hogshead. And you will groan for two nights when you calculate the expense."

"Well now, perhaps I won't. Despite your opinion, the dinner is to be on the most lavish scale."

"Oh, I see." She stared at him contemptuously. "You are very friendly with these barbarians. Perhaps that is why I was not to be permitted to attend your conversation. Perhaps your little weazened soul is plotting to turn against my father."

"Not at all."

"Yes, I'd be likely to believe you, wouldn't I? If ever a poor woman was sacrificed for policy to an unsavory marriage, it was myself. I could have picked a more proper man from the alleys and mudheaps of my native world."

"Well, now, I'll tell you what, my lady. Perhaps you would enjoy returning to your native world. Only to retain as a souvenir that portion of you with which I am best acquainted, I could have your tongue cut out first. And," he lolled his head, calculatingly, to one side, "as a final improving touch to your beauty, your ears and the tip of your nose as well."

"You wouldn't dare, you little pug-dog. My father would pulverize your toy nation to meteoric dust. In fact, he might do it in any case, if I told him you were treating with these barbarians."

"Hm-m-m. Well, there's no need for threats. You are free to question the man yourself tonight. Meanwhile, madam, keep your wagging tongue still."

"At your orders?"

"Here, take this, then, and keep still."

The band was about her waist and the necklace around her neck. He pushed the knob himself and stepped back.

The Commdora drew in her breath and held out her hands stiffly. She fingered the necklace gingerly, and gasped again.

The Commdor rubbed his hands with satisfaction and said, "You may wear it tonight—and I'll get you more. *Now* keep still."

The Commdora kept still.

Jaim Twer fidgeted and shuffled his feet. He said, "What's twisting *your* face?"

Hober Mallow lifted out of his brooding, "Is my face twisted? It's not meant so."

"Something must have happened yesterday . . . I mean, besides that feast." With sudden conviction,

"Mallow, there's trouble, isn't there?"

"Trouble? No. Quite opposite. In fact, I'm in the position of throwing my full weight against a door and finding it ajar at the time. We're getting into this steel foundry too easily."

"You suspect a trap?"

"Oh, for Seldon's sake, don't be melodramatic." Mallow swallowed his impatience and added conversationally, "It's just that the easy entrance means there will be nothing to see."

"Atomic power, huh?" Twer ruminated. "I'll tell you. There's just about no evidence of any atomic power economy here in Korell. And it would be pretty hard to mask all signs of the widespread effects a fundamental technology such as atomics would have on everything."

"Not if it was just starting up, Twer, and being applied to a war economy. You'd find it in the shipyards and the steel foundries only."

"So if we don't find it, then—"

"Then they haven't got it—or they're not showing it. Toss a coin or take a guess."

Twer shook his head, "I wish I'd been with you yesterday."

"I wish you had too," said Mallow, stonily. "I have no objection to moral support. Unfortunately, it was the Commdor who set the terms of the meeting, and not myself. And *that* outside there is the royal ground-car to escort us to the foundry. Have you got the gadgets?"

"All of them."

The foundry was large, and bore the odor of decay which no amount of superficial repairs could quite erase. It was empty now and in quite an unnatural state of quiet, as it played unaccustomed host to the Commdor and his court.

Mallow had swung the steel sheet onto the two supports with a careless heave. He had taken the instrument held out to him by Twer and was gripping the leather handle inside its leaden sheath.

"The instrument," he said, "is dangerous, but so is a buzz saw. You just have to keep your fingers away—"

And as he spoke, he drew the muzzle-slit swiftly down the length of the steel sheet, which quietly and instantly fell in two.

There was a unanimous jump, and Mallow laughed. He picked up one of the halves and propped it against his knee, "You can adjust the cutting-length accurately to a hundredth of an inch, and a two-inch sheet will slit down the middle as easily as this thing did. If you've got the thickness exactly, you can place steel on a wooden table, and split the metal without scratching the wood."

And at each phrase, the atomic shear moved and a gouged chunk of steel flew across the room.

"That," he said, "is whittling—with steel."

He passed back the shear. "Or else you have the plane. Do you want to decrease the thickness of a sheet, smooth out an irregularity, remove corrosion? Watch!"

Thin, transparent foil flew off the other half of the original sheet in six-inch swaths, then eight-inch, then twelve.

"Or drills? It's all the same principle."

They were crowded around now. It might have been a sleight-of-hand show, a corner magician, a vaudeville act made into high-pressure salesmanship. Commdor Asper fingered scraps of steel. High officials of the government tiptoed over each other's shoulders, and whispered, while Mallow punched clean, beautiful round holes through an inch of hard steel at every touch of his atomic drill.

"Just one more demonstration. Bring two short lengths of pipe, somebody."

An Honorable Chamberlain of something-or-other sprang to obedience in the general excitement and thought-absorption, and stained his hands like any laborer.

Mallow stood them upright and shaved the ends off with a single stroke of the shear, and then joined the pipes, fresh cut to fresh cut.

And there was a single pipe! The new ends, with even atomic irregularities missing, formed one piece upon joining. Johannison blocks, at a stroke.

Then Mallow looked up at his audience, stumbled at his first word and stopped. There was the keen stirring of excitement in his chest, and the base of his stomach went tingly and cold.

The Commdor's own bodyguard, in the confusion, had struggled to the front line, and Mallow, for the first time, was near enough to see their unfamiliar hand-weapons in detail.

They were atomic! There was no mistaking it; an explosive projectile weapon with a barrel like that was impossible. But that wasn't the big point. That wasn't the point at all.

The butts of those weapons had, deeply etched upon them, in worn gold plating, the Spaceship-and-Sun!

The same Spaceship-and-Sun that was stamped on every one of the great volumes of the original Encyclopedia that the Foundation had begun and not yet finished. *The same Spaceship-and-Sun that had blazoned the banner of the Galactic Empire through millennia.*

Mallow talked through and around his thoughts, "Test that pipe! It's one piece. Not perfect; naturally, the joining shouldn't be done by hand."

There was no need of further legerdemain. It had gone over. Mallow was through. He had what he wanted. There was only one thing in his mind. The golden globe with its conventionalized rays, and the oblique cigar shape that was a space vessel.

The Spaceship-and-Sun of the Empire!

The Empire! The words drilled! A century and a half had passed but there was still the Empire, somewhere deeper in the Galaxy. And it was emerging again, out into the Periphery.

Mallow smiled!

The *Far Star* was two days out in space, when Hober Mallow, in his private quarters with Senior lieutenant Drawt, handed him an envelope, a roll of microfilm, and a silvery spheroid.

"As of an hour from now, lieutenant, you're Acting Captain of the *Far Star,* until I return—or forever."

Drawt made a motion of standing but Mallow waved him down imperiously.

"Quiet, and listen. The envelope contains the exact location of the planet to which you're to proceed. There you will wait for me for two months. If before the two months are up, the Foundation locates you, the microfilm is my report of the trip.

"If, however," and his voice was somber, "I do *not* return at the end of two months, and Foundation vessels do not locate you, proceed to the planet Terminus, and hand in the Time Capsule as the report. Do you understand that?"

"Yes, sir."

"At no time are you, or any of the men, to amplify in any single instance, my official report."

"If we are questioned, sir?"

"Then you know nothing."

"Yes, sir."

The interview ended, and fifty minutes later, a lifeboat kicked lightly off the side of the *Far Star.*

IV.

Onum Barr was an old man, too old to be afraid. Since the last disturbances, he had lived alone on the fringes of the land with what books he had saved from the ruins. He had nothing he feared losing, least of all the worn remnant of his life, and so he faced the intruder without cringing.

"Your door was open," the stranger explained.

His accent was clipped and harsh, and Barr did not fail to notice the strange blue-steel hand-weapon at his hip. In the half-gloom of the small room, Barr saw the glow of a force-shield surrounding the man.

He said wearily, "There is no reason to keep it closed. Do you wish anything of me?"

"Yes." The stranger remained standing in the center of the room. He was large, both in height and bulk. "Yours is the only house about here."

"It is a desolate place," agreed Barr, "but there is a town to the east. I can show you the way."

"In a while. May I sit?"

"If the chairs will hold you," said the old man, gravely. They were old, too. Relics of a better youth.

The stranger said, "My name is Hober Mallow. I come from a far province."

Barr nodded and smiled, "Your tongue convicted you of that long ago. I am Onum Barr of Siwenna —and once Patrician of the Empire."

"Then this *is* Siwenna. I had only old maps to guide me."

"They would have to be old, indeed, for star-positions to be misplaced."

Barr sat quite still, while the

other's eyes drifted away into a reverie. He noticed that the atomic force-shield had vanished from about the man and admitted dryly to himself that his person no longer seemed formidable to strangers—or even, for good or for evil, to his enemies.

He said, "My house is poor and my resources few. You may share what I have if your stomach can endure black bread and dried corn."

Mallow shook his head, "No, I have eaten, and I can't stay. All I need are the directions to the center of government."

"That is easily enough done, and poor though I am, deprives me of nothing. Do you mean the capital of the planet, or of the Imperial Sector?"

The younger man's eyes narrowed, "Aren't the two identical? Isn't this Siwenna?"

The old patrician nodded slowly, "Siwenna, yes. But Siwenna is no longer capital of the Normanic Sector. Your old map has misled you after all. The stars may not change even in centuries, but political boundaries are all too fluid."

"That's too bad. In fact, that's very bad. Is the new capital far off?"

"It's on Orsha II. Twenty parsecs off. Your map will direct you. How old is it?"

"A hundred-fifty years."

"That old?" He sighed. "History has been crowded since. Do you know any of it?"

Mallow shook his head slowly.

Barr said, "You're fortunate. It has been an evil time for the provinces, but for the reign of Stanell VI, and he died fifty years ago. Since that time, rebellion and ruin, ruin and rebellion." Barr wondered if he were growing garrulous. It was a lonely life out here, and he had so little chance to talk to men.

Mallow said with sudden sharpness, "Ruin, eh? You sound as if the province were impoverished."

"Perhaps not on an absolute scale. The physical resources of twenty-five first-rank planets take a long time to use up. Compared to the wealth of the last century, though, we have gone a long way downhill—and there is no sign of turning, not yet. Why are you so interested in this, young man? You are all alive and your eyes shine!"

The trader came near enough to blushing, as the faded eyes seemed to look too deep into his and smile at what they saw.

He said, "Now look here. I'm a trader out there—out towards the rim of the Galaxy. I've located some old maps, and I'm out to open new markets. Naturally, talk of impoverished provinces disturbs me. You can't get money out of a world unless money's there to be got. Now how's Siwenna, for instance?"

The old man leaned forward, "I cannot say. It will do even yet, perhaps. But *you* a trader? You look more like a fighting man. You hold your hand near your gun and there is a scar on your jawbone."

Mallow jerked his head, "There isn't much law out there where I come from. Fighting and scars are part of a trader's overhead. But

fighting is only useful when there's money at the end, and if I can get it without, so much the sweeter. Now will I find enough money here to make it worth the fighting? I take it I can find the fighting easily enough."

"Easily enough," agreed Barr. "You could join Wiscard's remnants in the Red Stars. I don't know, though, if you'd call that fighting or piracy. Or you could join our present gracious viceroy—gracious by right of murder, pillage, rapine, and the word of a boy Emperor, since rightfully assassinated." The patrician's thin cheeks reddened. His eyes closed and then opened, bird-bright.

"You don't sound very friendly to the viceroy, Patrician Barr," said Mallow. "What if I'm one of his spies?"

"What if you are?" said Barr, bitterly. "What can you take?" He gestured a withered arm at the bare interior of the decaying mansion.

"Your life."

"It would leave me easily enough. It has been with me five years too long. But you are *not* one of the viceroy's men. If you were, perhaps even now instinctive self-preservation would keep my mouth closed."

"How do you know?"

The old man laughed, "You seem suspicious. Come, I'll wager you think I'm trying to trap you into denouncing the government. No, no. I am past politics."

"Past politics? Is a man ever past that? The words you used to describe the viceroy—what were they? Murder, pillage, all that. You didn't sound objective. Not exactly. Not as if you were past politics."

The old man shrugged, "Memories sting when they come suddenly. Listen! Judge for yourself! When Siwenna was the provincial capital, I was a patrician and a member of the provincial senate. My family was an old and honored one. One of my great-grandfathers had been— No, never mind that. Past glories are poor feeding."

"I take it," said Mallow, "there came a civil war, or a revolution."

Barr's face darkened, "Civil wars are chronic in these degenerate days, but Siwenna had kept apart. Under Stannell VI, it had almost achieved its ancient prosperity. But weak emperors followed, and weak emperors mean strong viceroys, and our last viceroy—the same Wiscard, whose remnants still prey on commerce in the Red Stars—aimed at the Imperial Purple. He wasn't the first to aim. And if he had succeeded, he wouldn't have been the first to succeed.

"But he failed. For when the Emperor's Admiral approached the province at the head of a fleet, Siwenna itself rebelled against its rebel viceroy." He stopped, sadly.

Mallow found himself tense on the edge of his seat, and relaxed slowly, "Please continue, sir."

"Thank you," said Barr, wearily. "It's kind of you to humor an old man. They rebelled; or I should say, *we* rebelled, for I was one of the minor leaders. Wiscard left

Siwenna, barely ahead of us, and the planet, and with it the province, were thrown open to the admiral with every gesture of loyalty to the Emperor. Why we did this, I'm not sure. Maybe we felt loyal to the symbol, if not to the person, of the Emperor—a cruel and vicious child. Maybe we feared the horrors of a siege."

"Well?" urged Mallow, gently.

"Well," came the grim retort, "that didn't suit the admiral. He wanted the glory of conquering a rebellious province, and his men wanted the loot that conquest involved. So while the people were still gathered in every large city, cheering the Emperor and his admiral, he occupied all armed centers, and then ordered the population put to the atom-blast."

"On what pretext?"

"On the pretext that they had rebelled against their viceroy, the Emperor's anointed. And the admiral became the new viceroy, by virtue of one month of massacre, pillage, and complete horror. I had six sons. Five died—variously, I had a daughter. I *hope* she died, eventually. *I* escaped because I was old. I came here, too old to cause even our viceroy worry." He bent his gray head, "They left me nothing, because I had helped drive out a rebellious governor and deprived an admiral of his glory."

Mallow sat silent, and waited. Then, "What of your sixth son?" he asked softly.

"Eh?" Barr smiled acidly. "He is safe, for he has joined the admiral as a common soldier under an assumed name. He is a gunner in the viceroy's personal fleet. Oh, no, I see your eyes. He is not an unnatural son. He visits me when he can and gives me what he can. He keeps me alive. And some day, our great and glorious viceroy will die and my son will be his executioner."

"And you tell that to a stranger? You endanger your son."

"No. I help him, by introducing a new enemy. And were I a friend of the Exarch, as I am his enemy, I would tell him to string outer space with ships, clear to the rim of the Galaxy."

"There are no ships there?"

"Did you find any? Did any space-guards question your entry? With ships few enough, and the bordering provinces filled with their share of intrigue and iniquity, none can be spared to guard the barbarian outer suns. No danger ever threatened us from the broken edge of the Galaxy—until *you* came."

"I? I'm no danger."

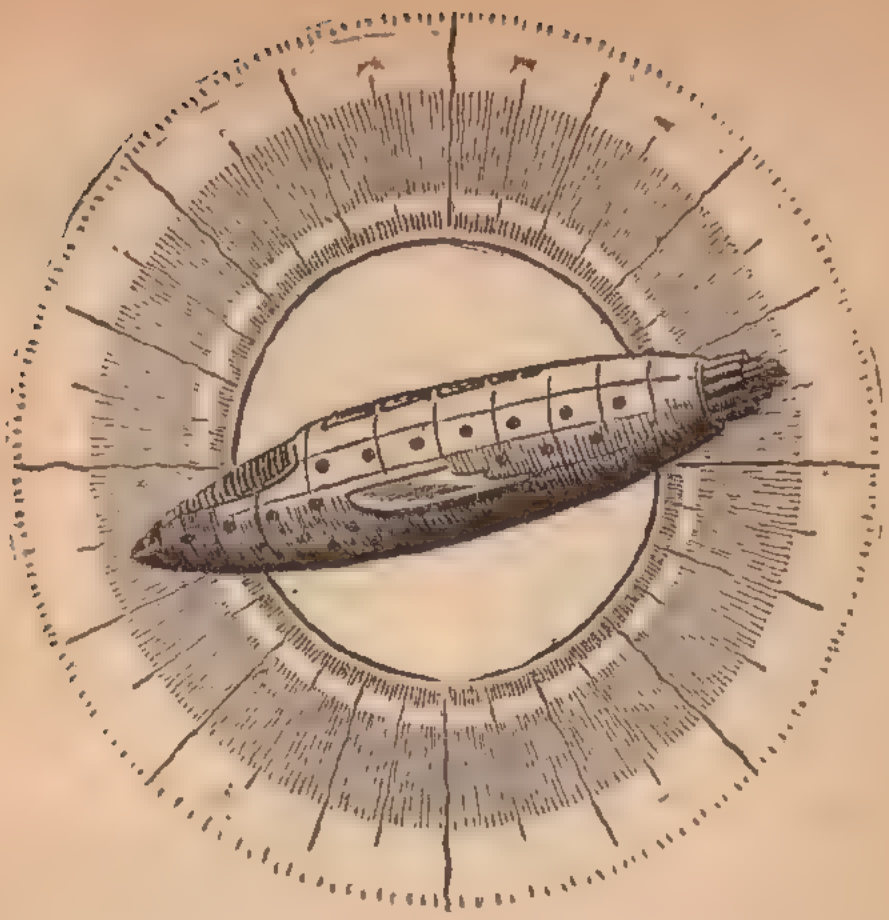
"There will be more after you."

Mallow shook his head slowly, "I'm not sure I understand you."

"Listen!" There was a feverish edge to the old man's voice. "I knew you when you entered. You have a force-shield about your body, or had when I first saw you."

Doubtful silence, then, "Yes—I had."

"Good. That was a flaw, but you didn't know that. There are some things I know. It's out of fashion in these decaying times to be a scholar. Events race and flash



past and who cannot fight the tide with atom-blast in hand is swept away, as I was. But I was a scholar, and I know that in all the history of atomics, no portable force-shield was ever invented. We have force-shields—huge, lumbering powerhouses that will protect a city, or even a ship, but not one, single man."

"Ah?" Mallow's underlip thrust out. "And what do you deduce from that?"

"There have been stories percolating through space. They travel strange paths and become distorted with every parsec—but when I was young there was a small ship of strange men, who did not know our customs and could not tell where they came from. They talked of magicians at the edge of the Galaxy; magicians who glowed in the darkness, who flew unaided through the air, and whom weapons would not touch.

"We laughed. I laughed, too. I forgot it till today. But you glow in the darkness, and I don't think my blaster, if I had one, would hurt you. Tell me, can you fly through air as you sit there now?"

Mallow said calmly, "I can make nothing of all this."

Barr smiled, "I'm content with the answer. I do not examine my guests. But if there are magicians; if *you* are one of them; there may

some day be a great influx of them, or you. Perhaps that would be well. Maybe we need new blood." He muttered soundlessly to himself, then, slowly, "But it works the other way, too. Our new viceroy also dreams, as did our old Wiscard."

"Also after the Emperor's crown?"

Barr nodded, "My son hears tales. In the viceroy's personal entourage, one could scarcely help it. And he tells me of them. Our new viceroy would not refuse the Crown if offered, but he guards his line of retreat. There are stories that, failing Imperial heights, he plans to assume a Kingship of his own and carve out a new Empire in the barbarian hinterland. It is said, but I don't vouch for this, that he has already given one of his daughters as wife to a Kinglet somewhere in the uncharted Periphery."

"If one listened to every story—"

.. "I know. There are many more. I'm old and I babble nonsense. But what do you say?" And those sharp, old eyes peered deep.

The trader considered, "I say nothing. But I'd like to ask something. Does Siwenna have atomic power? Now, wait, I know that it possesses the knowledge of atomics. I mean, do they have power generators intact, or did the recent sack destroy them?"

"Destroy them? Oh, no. Half a planet would be wiped out before the smallest power station would be touched. They are irreplaceable and the suppliers of the strength of the fleet." Almost proudly, "We have the largest and best on this side of Vega itself."

"Then what would I do first if I wanted to see these generators?"

"Nothing!" replied Barr, decisively. "You couldn't approach any military center without being shot down instantly. Neither could anyone. Siwenna is still deprived of civic rights."

"You mean all the power stations are under the military?"

"No. There are the small city stations, the ones supplying power for heating and lighting homes, powering vehicles and so forth. Those are almost as bad. They're controlled by the tech-men."

"Who are they?"

"A specialized group who supervise power plants. The honor is hereditary, the young ones being brought up in the profession as apprentices. Strict sense of duty, honor, and all that. No one but a tech-man could enter a station."

"I see."

"I don't say, though," added Barr, "that there aren't cases where tech-men haven't been bribed. In days when we have nine emperors in fifty years and seven of these are assassinated—when every space-captain aspires to the usurpation of a viceroyship, and every viceroy to the Imperium, I suppose even a tech-man can fall prey to money. But it would require a good deal, and I have none. Have you?"

"Money? No. But does one always bribe with money?"

"What else, when money buys all else."

"There are quite enough objects

that money won't buy. And now if you'll tell me the nearest city with one of the stations, and how best to get there, I'll thank you."

"Wait!" Barr held out his thin hands. "Where do you rush? You come here, but *I* ask no questions. In the city, where the inhabitants are still called rebels, you would be challenged by the first soldier or guard who heard your accent and saw your clothes."

He rose and from an obscure corner of an old chest brought out a booklet. "My passport—forged. I escaped with it."

He placed it in Mallow's hand and folded the fingers over it. "The description doesn't fit, but if you flourish it, the chances are many to one they will not look closely."

"But you. You'll be left without one."

The old exile shrugged cynically, "What of it? And a further caution. Curb your tongue! Your accent is barbarous, your idioms peculiar, and every once in a while you deliver yourself of the most astounding archaisms. The less you speak, the less suspicion you will draw upon yourself. Now I'll tell you how to get to the city—"

Five minutes later, Mallow was gone.

He returned but once, for a moment, to the old patrician's house, before leaving it entirely, however. And when Onum Barr stepped into his little garden early the next morning, he found a box at his feet. It contained provisions, concentrated provisions such as one would find aboard ship, and alien in taste and preparation.

But they were good, and lasted long.

The tech-man was short, and his skin glistened with well-kept plumpness. His hair was a fringe and his skull shone through pinkly. The rings on his fingers were thick and heavy, his clothes were scented, and he was the first man Mallow had met on the planet who hadn't looked hungry.

The tech-man's lips pursed peevishly, "Now, my man, quickly. I have things of great importance waiting for me. You seem a stranger—" He seemed to evaluate Mallow's definitely un-Siwennese costume and his eyelids were heavy with suspicion.

"I am not of the neighborhood," said Mallow, calmly, "but the matter is irrelevant. I have had the honor to send you a little gift yesterday—"

The tech-man's nose lifted. "I received it. An interesting gewgaw. I may have use for it on occasion."

"I have other and more interesting gifts. Quite out of the gewgaw stage."

"Oh-h!" The tech-man's voice lingered thoughtfully over the monosyllable. "I think I already see the course of the interview; it has happened before. You are going to give me some trifle or other. A few credits, perhaps, a cloak, second-rate jewelry; anything your little soul may think sufficient to corrupt a tech-man." His lower lip

puffed out belligerently, "And I know what you wish in exchange. There have been others to suffice with the same bright idea. You wish to be adopted into our clan. You wish to be taught the mysteries of atomics and the care of the machines. You think because you dogs of Siwenna—and probably your strangerhood is assumed for safety's sake—are being daily punished for your rebellion that you can escape what you deserve by throwing over yourselves the privileges and protections of the tech-man's guild."

Mallow would have spoken, but the tech-man raised himself into a sudden roar. "And now leave before I report your name to the Protector of the City. Do you think that I would betray the trust? The Siwennese traitors that preceded me—perhaps! But you deal with a different breed now. Why, Galaxy, I marvel that I do not kill you myself at this moment with my two hands."

Mallow smiled to himself. The entire speech was so patently artificial in tone and content, that all his dignified indignation degenerated into inspired farce.

The trader glanced humorously at the two flabby hands that had been named his possible executioners then and there, and said, "Your Wisdom, you are wrong on three counts. First, I am not a creature of the viceroy come to test your loyalty. Secondly, my gift is something the Emperor himself in all his splendor does not and will never possess. Thirdly, what I wish in return is very little; a nothing; a mere breath."

"So you say!" He descended into heavy sarcasm. "Come, what is this imperial donation that your godlike power wishes to bestow upon me? Something the Emperor doesn't have, eh?" He broke into a sharp squawk of derision.

Mallow rose and pushed the chair aside, "I have waited three days to see you, Your Wisdom, but the display will take only three seconds. If you will just draw that blaster whose butt I see very near your hand—"

"Eh?"

"And shoot me, I will be obliged."

"What?"

"If I am killed, you can tell the police I tried to bribe you into betraying guild secrets. You'll receive high praise. If I am not killed, you may have my shield."

For the first time, the tech-man became aware of the dimly-white illumination that hovered closely about his visitor, as though he had been dipped in pearl-dust. His blaster raised to the level and with eyes a-squint in wonder and suspicion, he closed contact.

The molecules of air caught in the sudden surge of atomic disruption, tore into glowing, burning ions, and marked out the blinding thin line that struck at Mallow's heart—and splashed!

While Mallow's look of patience never changed, the atomic forces that tore at him consumed themselves against that fragile, pearly

illumination, and crashed back to die in midair.

The tech-man's blaster dropped to the floor with an unnoticed crash.

Mallow said, "Does the Emperor have a personal force-shield? *You* can have one."

The tech-man stuttered, "Are you a tech-man?"

"No."

"Then . . . then where did you get that?"

"What do you care?" Mallow was coolly contemptuous. "Do you want it?" A thin, knobbed chain fell upon the desk, "There it is."

The tech-man snatched it up and fingered it nervously, "Is this complete?"

"Complete."

"Where's the power?"

Mallow's finger fell upon the largest knob, dull in its leaden case.

The tech-man looked up, and his face congested with blood, "Sir, I am a tech-man, senior grade. I have twenty years behind me as supervisor and I studied under the great Bler at the University of Trantor. If you have the infernal charlatanry to tell me that a small container the size of a . . . of a walnut, blast it, holds an atomic generator, I'll have you before the Protector in three seconds."

"Explain it yourself then, if you can. I say it's complete."

The tech-man's flush faded slowly as he bound the chain about his waist, and, following Mallow's gesture, pushed the knob. The radiance that surrounded him shone into dim relief. His blaster lifted, then hesitated. Slowly, he adjusted it to an almost burn-less minimum.

And then, convulsively, he closed circuit and the atomic fire dashed against his hand, harmlessly.

He whirled, "And what if I shoot you now, and keep the shield."

"Try!" said Mallow. "Do you think I gave you my only sample." And he, too, was solidly incased in light.

The tech-man giggled nervously. The blaster clattered onto the desk. He said, "And what is this mere nothing, this breath, that you wish in return?"

"I want to see your generators."

"You realize that that is forbidden. It would mean ejection into space for both of us—"

"I don't want to touch them or have anything to do with them. I want to *see* them—from a distance."

"If not?"

"If not, you have your shield, but I have other things. For one thing, a blaster especially designed to pierce that shield."

"Hm-m-m," the tech-man's eyes shifted. "Come with me."

The tech-man's home was a small two-story affair on the outskirts of the huge, cubical, windowless affair that dominated the center of the city. Mallow passed from one to the other through an underground passage, and found himself in the silent, ozone-tinged atmosphere of the powerhouse.

For fifteen minutes, he followed his guide and said nothing. His eyes missed nothing. His fingers

touched nothing. And then, the tech-man said in strangled tones, "Have you had enough? I couldn't trust my underlings in *this* case."

"Could you ever?" asked Mallow, ironically. "I've had enough."

They were back in the office and Mallow said, thoughtfully, "And all those generators are in your hands?"

"Every one," said the tech-man, with more than a touch of complacency.

"And you keep them running and in order?"

"Right!"

"And if they break down?"

The tech-man shook his head indignantly, "They don't break down. They never break down. They were built for eternity."

"Eternity is a long time. Just suppose—"

"It is unscientific to suppose meaningless cases."

"All right. Suppose I were to blast a vital part into nothingness? I suppose the machines aren't immune to atomic forces. Suppose I fuse a vital connection, or smash a quartz D-tube?"

"Well, then," shouted the tech-man, furiously, "you would be killed."

"Yes, I know that," Mallow was shouting, too, "but what about the generator? Could you repair it?"

"Sir," the tech-man howled his words, "you have had a fair return. You've had what you asked for. Now get out! I owe you nothing more!"

Mallow bowed with a satiric respect and left.

Two days later he was back at the base where the *Far Star* waited to return with him to the planet, Terminus.

And two days later, the tech-man's shield went dead, and for all his puzzling and cursing, never glowed again.

V.

Mallow relaxed for almost the first time in six months. He was on his back in the sunroom of his new house, stripped to the skin. His great, brown arms were thrown up and out, and the muscles tautened into a stretch, then faded into repose.

The man beside him placed a cigar between Mallow's teeth and lit it. He champed on one of his own and said, "You must be overworked. Maybe you need a long rest."

"Maybe I do, Jael, but I'd rather rest in a council seat. Because I'm going to have that seat, and you're going to help me."

Ankor Jael raised his eyebrows and said, "How did I get into this?"

"You got in obviously. Firstly, you're an old dog of a politico. Secondly, you were booted out of your cabinet seat by Jorane Sutt, the same fellow who'd rather lose an eyeball than see me in the council. You don't think much of my chances, do you?"

"Not much," agreed the ex-Min-

ister of Education. "You're a Smyrnian."

"That's no legal bar. I've had a lay education."

"Well, come now. Since when does prejudice follow any law but its own. Now, how about your own man—this Jaim Twer? What does *he* say?"

"He spoke about running me for council almost a year ago," replied Mallow easily, "but I've outgrown him. He couldn't have pulled it off in any case. Not enough depth. He's loud and forceful—but that's only an expression of nuisance value. I'm off to put over a real coup. I need *you*."

"Jorane Sutt is the cleverest politician on the planet and he'll be against you. I don't claim to be able to outsmart him. And don't think he doesn't fight hard, and dirty."

"I've got money."

"That helps. But it takes a lot to buy off prejudice—you dirty Smyrnian."

"I'll have a lot."

"Well, I'll look into the matter. But don't ever you crawl up on your hind legs and bleat that I encouraged you in the matter. Who's that?"

Mallow pulled the corners of his mouth down, and said, "Jorane Sutt himself, I think. He's early, and I can understand it. I've been dodging him for a month. Look, Jael, get into the next room, and turn the speaker on low. I want you to listen."

He helped the council member out of the room with a shove of his bare foot, then scrambled up and into a silk robe. The synthetic sunlight faded to normal power.

The secretary to the mayor entered stiffly, while the solemn majordomo tiptoed the door shut behind him.

Mallow fastened his belt and said, "Take your choice of chairs, Sutt."

Sutt barely cracked a flicking smile. The chair he chose was comfortable but he did not relax into it. From its edge, he said, "If you'll state your terms to begin with, we'll get down to business."

"What terms?"

"You wish to be coaxed? Well, then, what, for instance, did you do at Korell? Your report was incomplete."

"I gave it to you months ago. You were satisfied then."

"Yes," Sutt rubbed his forehead thoughtfully with one finger, "but since then your activities have been significant. We know a good deal of what you're doing, Mallow. We know, exactly, how many factories you're putting up; in what a hurry you're doing it; and how much it's costing you. And there's this palace you have," he gazed about him with a cold lack of appreciation, "which set you back considerably more than my annual salary; and a swathe you've been cutting—a very considerable and expensive swathe—through the upper layers of Foundation society."

"So? Beyond proving that you employ capable spies, what does it show?"

"It shows you have money you

didn't have a year ago. And that can show anything—for instance, that a good deal went on at Korell that we know nothing of. Where are you getting your money?"

"My dear Sutt, you can't really expect me to tell you."

"I don't."

"I didn't think you did. That's why I'm going to tell you. It's straight from the treasure-chests of the Commdor of Korell."

Sutt blinked.

Mallow smiled and continued, "Unfortunately for you, the money is quite legitimate. I'm a master trader and the money I received was a quantity of hematite and chromite I received in exchange for a number of trinkets I was able to supply him with. Fifty percent is mine by hide-bound contract with the Foundation. The other half goes to the government at the end of the year when all good citizens pay their income tax."

"There was no mention of any trade agreement in your report."

"Nor was there any mention of what I had for breakfast that day, or the name of my current mistress, or any other irrelevant detail." Mallow's smile was fading into a sneer. "I was sent—to quote yourself—to keep my eyes open. They were never shut. You wanted to find out what happened to the captured Foundation merchant ships. I never saw or heard of them. You wanted to find out if Korell had atomic power. My report tells of atomic blasters in the possession of the Commdor's private bodyguard. I saw no other signs. And the blasters I did see are relics of the old Empire, and may be show-pieces that do not work, for all my knowledge.

"So far, I followed orders, but beyond that I was, and still am, a free agent. According to the laws of the Foundation, a master trader may open whatever new markets he can, and receive therefrom his due half of the profits. What are your objections? I don't see them."

Sutt bent his eyes carefully towards the wall and spoke with a difficult lack of anger, "It is the general custom of all Traders to advance the religion with their trade."

"I adhere to law, and not to custom."

"There are times when custom can be the higher law."

"Then appeal to the courts."

Sutt raised somber eyes which seemed to retreat into their sockets. "You're a Smyrnian after all. It seems naturalization and education can't wipe out the taint in the blood. Listen, and try to understand, just the same.

"This goes beyond money, or markets. We have the science of the great Hari Seldon to prove that upon us depends the future empire of the Galaxy, and from the course that leads to that Imperium we cannot turn. The religion we have is our all-important instrument towards that end. With it we have brought the Four Kingdoms under our control, even at the moment when they would have crushed us. It is the most potent device known

with which to control men and worlds.

"The primary reason for the development of Trade was to introduce and spread this religion more quickly, and to insure that the introduction of new techniques and a new economy would be subject to our thorough and intimate control."

He paused for breath, and Mallow interjected quietly, "I know the theory. I understand it entirely."

"Do you? It is more than I expected. Then you see, of course, that your attempt at trade for its own sake; at mass production of worthless gadgets, which can only effect a world's economy superficially; at the subversion of interstellar policy to the god of profits; at the divorce of atomic power from our controlling religion—can only end at the overthrow and complete negation of the policy that has worked successfully for a century."

"And time enough, too," said Mallow, indifferently, "for a policy outdated, dangerous, and newly-impossible. However well your religion has succeeded in the Four Kingdoms, not another world in the Periphery has accepted it. At the time we seized control of the Kingdoms, there were a sufficient number of exiles, Galaxy knows, to spread the story of how Salvor Hardin used the priesthood and the superstition of the people to overthrow the independence and power of the secular monarch. There isn't a ruler in the Periphery now that wouldn't sooner cut his own throat than let a priest of the Foundation enter the territory.

"I don't propose to force Korell or any other world to accept something I know they don't want. No, Sutt. If atomic power makes them dangerous, a sincere friendship through trade will be many times better than an insecure overlordship, based on the hated supremacy of a foreign spiritual power, which, once it weakens ever so slightly, can only fall entirely and leave nothing substantial behind except an immortal fear and hate."

Sutt said cynically, "Very nicely put. So, to get back to the original point of discussion, what are your terms? What do you require to exchange your ideas for mine."

"You think my convictions are for sale?"

"Why not?" came the cold response. "Isn't that your business, buying and selling?"

"Only at a profit," said Mallow, unoffended. "Can you offer me more than I'm getting as is."

"You could have three-quarters of your trade profits, rather than half."

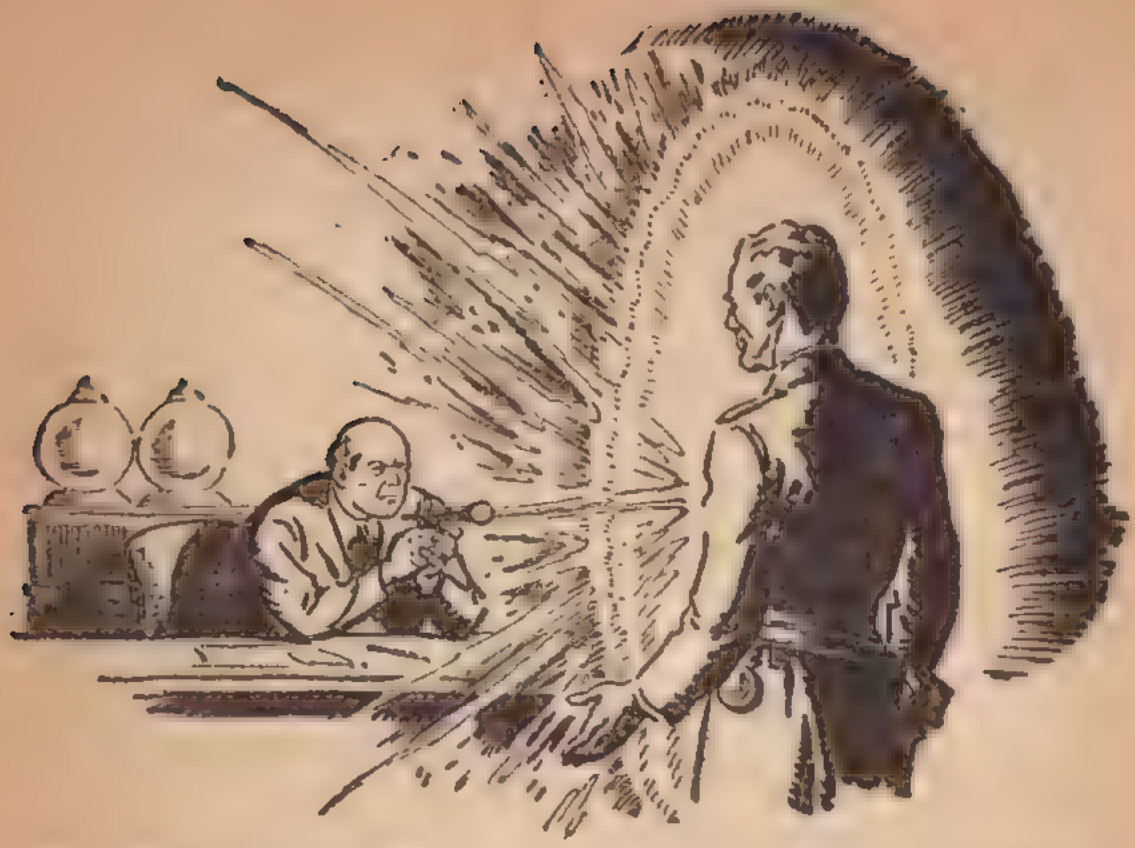
Mallow laughed shortly, "A fine offer. The whole of the trade on your terms would fall far below a tenth share on mine. Try harder than that."

"You could have a council seat."

"I'll have that, anyway, without and despite you."

With a sudden movement, Sutt clenched his fist, "You could also save yourself a prison term. Of twenty years, if I have my way. Count the profit in that."

"No profit at all, unless you can fulfill your threat."



"It's trial for murder."

"Whose murder?" asked Mallow, contemptuously.

Sutt's voice was harsh now, though no louder than before, "The murder of an Anacreonian priest, in the service of the Foundation."

"Is that so now? And what's your evidence?"

The secretary to the mayor leaned forward, "Mallow, I'm not bluffing. The preliminaries are over. I have only to sign one final paper and the case of the Foundation versus Hober Mallow, master trader is begun. You abandoned a subject of the Foundation to torture and death at the hands of an alien mob, Mallow, and you have only five seconds to prevent the punishment due you. For myself, I'd rather you decided to bluff it out. You'd be safer as a destroyed enemy, than as a doubtfully-converted friend."

Mallow said, solemnly, "You have your wish."

"Good!" and the secretary smiled savagely. "It was the mayor who wished the preliminary attempt at compromise, not I. Witness that I did not try too hard."

The door opened before him, and he left.

Mallow looked up as Ankor Jael re-entered the room.

Mallow said, "Did you hear him?"

The politician flopped to the floor. "I never heard him as angry as that, since I've known the snake."

"All right. What do you make of it?"

"Well, I'll tell you. A foreign

policy of domination through spiritual means is his *idee fixe*, but it's my notion that his ultimate aims aren't spiritual. I was fired out of the Cabinet for arguing on the same issue, as I needn't tell you."

"You needn't. And what are those unspiritual aims according to your notion?"

Jael grew serious, "Well, he's not stupid, so he must see the bankruptcy of our religious policy, which hasn't made a single conquest for us in seventy years. He's obviously using it for purposes of his own.

"Now *any* dogma, primarily based on faith and emotionalism, is a dangerous weapon to use on others, since it is almost impossible to guarantee that the weapon will never be turned on the user. For a hundred years now, we've supported a ritual and mythology that is becoming more and more venerable, traditional—and immovable. In some ways, it isn't under our control any more."

"In what ways?" demanded Mallow. "Don't stop. I want your thoughts."

"Well, suppose one man, one ambitious man, uses the force of religion against us, rather than for us."

"You mean Sutt—"

"You're right, I mean Sutt. Listen, man, if he could mobilize the various hierarchies on the subject planets against the Foundation in the name of orthodoxy, what chance would we stand? By planting himself at the head of the standards of the pious, he could make war on heresy, as represented by you, for instance, and make himself king eventually. After all, it was Hardin who said: 'An atom-blaster is a good weapon, but it can point both ways.' "

Mallow slapped his bare thigh, "All right, Jael, then get me in that council, and I'll fight him."

Jael paused, then said significantly, "Maybe not. What was all that about having a priest lynched. It isn't true, is it?"

"It's true enough," Mallow said, carelessly.

Jael whistled, "Has he definite proof?"

"He should have." He hesitated, then added, "Jaim Twer was his man from the beginning, though neither of them knew that I knew that. And Jaim Twer was an eyewitness."

Jael shook his head. "Uh-oh. That's bad."

"Bad? What's bad about it. That priest was illegally upon the planet by the Foundation's own laws. He was obviously used by the Korellian government as a bait, whether involuntary or not. By all the laws of commonsense, I had no choice but one action—and that action was strictly within the law. If he brings me to trial, he'll do nothing but make a prime fool of himself."

And Jael shook his head again, "No, Mallow, you've missed it. I told you he played dirty. He's not out to convict you; he knows he can't do that. But he *is* out to ruin your standing with the people. You heard what he said. Custom *is*

higher than law, at times. You could walk out of the trial scot-free, but if the people think you threw a priest to the dogs, your popularity is gone.

"You'll be legal. You'll even be sensible. But you'll be a cowardly dog, an unfeeling brute, a hard-hearted monster. *And* you would never get elected to the council. You might even lose your rating as master trader by having your citizenship voted away from you. You're not native-born you know. What more do you think Sutt can want?"

Mallow frowned stubbornly, "So!"

"My boy," said Jael. "I'll stand by you, but *I* can't help. You're on the spot—dead center."

The council chamber was full in a very literal sense on the fourth day of the trial of Hober Mallow, master trader. The only councilman absent was feebly cursing the fractured skull that had bedridden him. The galleries were filled to the aisleways and ceilings with those few of the crowd who by influence, wealth, or sheer diabolic perseverance had managed to get in. The rest filled the square outside, in swarming knots about the open-air trimensional visors.

Ankor Jael made his way into the chamber with the near-futile aid and exertions of the police department, and then through the scarceless confusion within to Hober Mallow's seat.

Mallow turned with relief, "By Seldon, you cut it thin. Have you got it?"

"Here, take it," said Jael. It's all you want."

"Good. How're they taking it outside?"

"They're wild clear through." Jael stirred uneasily, "You should never have allowed public hearings. You could have stopped them."

"I didn't want to."

"There's lynch talk. And Publis Manlio's men on the outer planets —"

"I wanted to ask you about that, Jael. He's stirring up the Hierarchy against me, is he?"

"*Is* he? It's the sweetest setup you ever saw. As Foreign Secretary, he handles the prosecution in a case of international law. As High-Priest and Primate of the Church, he rouses the fanatic hordes—"

"Well, forget it. Do you remember that Hardin quotation you threw at me last month? We'll show them that the atom-blaster can point both ways."

The mayor was taking his seat now and the council members were rising in respect.

Mallow whispered, "It's my turn today. Sit here and watch the fun."

The day's proceedings began and fifteen minutes later, Hober Mallow stepped through a hostile whisper to the empty space before the mayor's bench. A lone beam of light centered upon him, and in the public visors of the city, as well as on the myriads of private visors in almost every home of the planets, the lonely, giant figure of a man

stared out defiantly.

He began easily and quietly, "To save time, I will admit the truth of every point made against me by the prosecution. The story of the priest and the mob as related by them is perfectly accurate in every detail."

There was a stirring in the chamber and a triumphant mass-snarl from the gallery. He waited patiently for silence.

"However, the picture they presented fell short of completion. I ask the privilege of supplying the completion in my own fashion. My story may seem irrelevant at first. I ask your indulgence for that."

Mallow made no reference to the notes before him:

"I begin at the same time as the prosecution did; the day of my meetings with Jorane Sutt and Jaim Twer. What went on at those meetings you know. The conversations have been described, and to that description I have nothing to add—except my own thoughts of that day.

"They were suspicious thoughts, for the events of that day were queer. Consider. Two people, neither of whom I knew more than casually, make unnatural and somewhat unbelievable propositions to me. One, the secretary to the mayor, asks me to play the part of intelligence agent to the government in a highly confidental matter, the nature and importance of which has already been explained to you. The other self-styled leader of a political party, asks me to run for a council seat.

"Naturally I looked for the ulterior motive. Sutt's seemed evident. He didn't trust me. Perhaps he thought I was selling atomic power to enemies and plotting rebellion. And perhaps he was forcing the issue, or thought he was. In that case, he would need a man of his own near me on my proposed mission, as a spy. The last thought, however, did not occur to me until later on, when Jaim Twer came on the scene.

"Consider again: Twer presents himself as a trader, retired into politics, yet I know of no details of his trading career, although my knowledge of the field is immense. And further, although Twer boasted a lay education, *he had never heard of a Seldon crisis.*"

Hober Mallow let the significance sink in and was rewarded with the first silence he had yet encountered, as the gallery caught its collective breath.

Mallow continued:

"Who here can honestly state that *any* man with a lay education can possibly be ignorant of the nature of a Seldon crisis? There is only one type of education upon the Foundation that excludes all mention of Seldon and his planned history—

"I knew at that instant that Jaim Twer had never been a trader. I knew then that he was in holy orders and perhaps a full-fledged priest; and, doubtless, that for the three years he had pretended to head a political party of the traders, *he had been a bought man of Jorane Sutt.*

"At the moment, I struck in the dark. I did not know Sutt's purposes with regard to me, but since he seemed to be feeding me rope liberally, I handed him a few fathoms of my own. My notion was that Twer was to be with me on my voyage as unofficial guardian on behalf of Jorane Sutt. Well, if he didn't get on, I knew well there'd be other devices waiting—and those others I might not catch in time. A known enemy is relatively safe. I invited Twer to come with me. He accepted.

"That, gentlemen of the council, explains two things. First, it tells you that Twer is not a friend of mine testifying against me reluctantly and for conscience' sake. He's a spy, performing his paid job. Secondly, it explains a certain action of mine on the occasion of the first appearance of the priest whom I am accused of having murdered—an action as yet unmentioned, because unknown."

Now there was a disturbed whispering in the council. Mallow cleared his throat theatrically, and continued:

"I hate to describe my feelings when I first heard that we had a refugee missionary on board. I even hate to remember them. Essentially, they consisted of wild uncertainty. The event struck me at the moment as a move by Sutt, and passed beyond my comprehension or calculation. I was at sea—and completely.

"There was one thing I could do. I got rid of Twer for five minutes by sending him after my officers. In his absence, I set up a Visual Record receiver, so that whatever happened might be preserved for future study. This was in the hope, the wild but earnest hope, that what confused me badly at the time, might become plain upon review.

"I have gone over that Visual Record some fifty times since. I have it here with me now, and will repeat the job a fifty-first time in your presence right now."

The mayor pounded monotonously for order, as the chamber lost its equilibrium and the gallery roared. In five million homes, excited observers crowded their receiving sets more closely, and at the prosecutor's own bench, Jorane Sutt shook his head coldly at the nervous high priest, while his eyes blazed fixedly on Mallow's face.

The center of the chamber was cleared, and the lights burnt low. Ankor Jael, from his bench on the left, made the adjustments, and with a preliminary click, a scene sprang to view; in color, in three-dimensions, in every attribute of life but life itself.

There was the missionary, confused and battered, standing between the lieutenant and the sergeant. Mallow's image waited silently, and then men filed in, Twer bringing up the rear.

The conversation played itself out, word for word. The sergeant was disciplined, and the missionary was questioned. The mob appeared, their growl could be heard, and the Revered Jord Parma made his wild appeal. Mallow drew his gun, and

the missionary, as he was dragged away, lifted his arms in a mad, final curse, and a tiny flash of light came and went.

The scene ended, with the officers frozen at the horror of the situation, while Twer clamped shaking hands over his ears, and Mallow calmly put his gun away.

The lights were on again; the empty space in the center of the floor was no longer even apparently full. Mallow, the real Mallow of the present, took up the burden of his narration:

"The incident, you see, is exactly as the prosecution has presented it—on the surface. I'll explain that shortly. Jaim Twer's emotions through the whole business shows clearly a priestly education, by the way.

"It was on that same day that I pointed out certain incongruities in the episode to Twer. I asked him where the missionary came from in the midst of the near-desolate tract we occupied at the time. I asked further where the gigantic mob had come from with the nearest sizable town a hundred miles away. There has never been an answer to that.

"Or to other questions; for instance, the curious point of Jord Parma's blatant conspicuousness. A missionary on Korell, risking his life in defiance to both Korellian and Foundation law, parades about in a very new and very distinctive priestly costume. There's something wrong. At the time, I suggested that the missionary was an unwitting accomplice of the Conmdor, who was using him in an attempt to force us into an act of wildly illegal aggression, to justify his subsequent destruction of our ship and of us.

"The prosecution has anticipated this justification of my actions, and has replied to it with their mutterings of the Foundation's 'honor' and the necessity of upholding our 'dignity' in order to maintain our ascendancy. That, and various other unchewable phrases.

"For some strange reason, however, the prosecution neglected Jord Parma himself—as an individual. They brought out no details concerning him; neither his birthplace, nor his education, nor any detail of previous history. The explanation of this will also explain the incongruities I have pointed out in the Visual Record you have just seen. The two are connected.

"The prosecution has advanced no details concerning Jord Parma because it *cannot*. That scene you saw by Visual Record seemed phony because Jord Parma was phony. There never *was* a Jord Parma. *This whole trial is the biggest farce ever cooked up over an issue that never existed.*"

Once more he had to wait for the babble to die down. He said, slowly:

"I'm going to show you the enlargement of a single still from the Visual Record. It will speak for itself. Lights again, Jael."

The chamber dimmed, and the empty air filled again with frozen

figures in ghastly, waxen illusion. The officers of the *Far Star* struck their stiff, impossible attitudes. A gun pointed from Mallow's rigid hand. At his left, the Revered Jord Parma, caught in mid-shriek, stretched his claws upward, while the falling sleeves hung halfway.

And from the missionary's hand there was that little gleam that in the previous showing had flashed and gone. It was a permanent glow now.

"Keep your eye on that light on his hand," called Mallow from the shadows. "Enlarge the scene, Jael!"

The tableau bloated—quickly. Outer portions fell away as the missionary drew towards the center and became a giant. Then there was only a head and an arm—and then only a hand, which filled everything and remained there in immense, hazy tautness.

The light had become a pair of fuzzy, glowing letters: K S P.

"That," Mallow's voice boomed out, "is a sample of tattooing, gentlemen. Under ordinary light it is invisible, but under ultraviolet light—with which I flooded the room in taking this Visual Record it stands out in high relief. I'll admit it is a naive method of secret identification, but it works on Korell, where UV light isn't found on street corners. Even in our ship, detection was accidental.

"Perhaps some of you have already guessed that K S P stands for 'Korellian Secret Police.'"

Mallow shouted over the tumult, roaring against the noise, "I have collateral proof in the form of documents brought from Korell which I can present to the council, if required.

"And so where now is the prosecution's case? They have already made and re-made the monstrous suggestion that I should have fought for the missionary in defiance of the law, and sacrificed my mission, my ship, and myself to the 'honor' of the Foundation.

"But to do it for an impostor?

"Should I have done it then for a Korellian secret agent tricked out in the robes and verbal gymnastics doubtless borrowed of an Anacreonian exile? Would Jorane Sutt and Publis Manlio have had me fall into a stupid, odious trap—"

His hoarsened voice faded into the featureless background of a shouting mob. He was being lifted onto shoulders, and carried to the mayor's bench. Out the windows, he could see a torrent of madmen swarming into the square to add to the thousands there already.

Mallow looked about for Ankor Jael, but it was impossible to find any single face in the incoherence of the mass. Slowly he became aware of a rhythmic, repeated shout, that was spreading from a small beginning, and pulsing into madness:

"Long live Mallow—long live Mallow—long live Mallow—"

Ankor Jael blinked at Mallow out of a haggard face. The last two days had been mad, sleepless ones.

"Mallow, you've put on a beautiful show, so don't spoil it by jump-

ing too high. You can't seriously consider running for mayor. Mob enthusiasm is a powerful thing, but it's notoriously fickle."

"Exactly!" said Mallow, grimly, "so we must coddle it, and the best way to do that is to continue the show."

"Now what."

"You're to have Publis Manlio and Jorane Sutt arrested—"

"What!"

"Yes! Have the mayor arrest them! I don't care what threats you use. I control the mob—today, anyway. He won't dare face them."

"On what charge, man?"

"On the obvious one. They've been inciting the priesthood of the outer planets to take sides in the fractional quarrels of the Foundation. That's risky, and illegal. Charge them with 'endangering the state.' And I don't care about a conviction any more than they did in my case. Just get them out of circulation until I'm mayor."

"It's half a year till election."

"Not too long!" Mallow was on his feet, and his sudden grip of Jael's arm was tight. "Listen, I'd seize the government by force if I had to—the way Salvor Hardin did a hundred years ago. There's still that Seldon crisis coming up, and when it comes I have to be mayor *and* high priest. Both!"

Jael's brow furrowed. He said, quietly, "What's it going to be? Korell, after all?"

Mallow nodded, "Of course. She'll declare war, eventually, though I'm betting it'll take another pair of years."

"With atomic ships?"

"What do you think? Those three merchant ships we lost in their space sector weren't knocked over with compressed-air pistols. Jael, they're getting ships from the Empire itself. Don't open your mouth like a fool. I said the Empire! It's still there, you know, and one false move means it, itself, will be on our necks. That's why I must be mayor and high priest. I'm the only man who knows how to fight the crisis."

Jael swallowed dryly, "How? What are you going to do?"

"Nothing."

Jael smiled uncertainly, "Really! All of that!"

But Mallow's answer was incisive, "When I'm boss of this Foundation, I'm going to do nothing. One hundred percent of nothing."

VI.

Asper Argo, the Well-beloved, Commdor of the Korellian Republic greeted his wife's entry by a hangdog lowering of his scanty eyebrows. To her at least, his self-adopted epithet did not apply. Even he knew that.

She said, in a voice as sleek as her hair and as cold as her eyes, "My gracious lord, I understand, has finally come to a decision upon the fate of the Foundation upstarts."

"Indeed?" said the Commdor, sourly. "And what more does your versatile understanding embrace?"

"Enough, my very noble husband. You had another of your vacillating consultations with your councilors. Fine advisors." With infinite scorn, "A herd of palsied, purblind idiots hugging their sterile profits close to their sunken chests in the face of my father's displeasure."

"And who, my dear," was the mild response, "is the excellent source from which your understanding understands all this."

The Commdora laughed shortly, "If I told you, my source would be more corpse than source."

"Well, you'll have your own way, as always." The Commdor shrugged and turned away. "And as for your father's displeasure: I much fear me it extends to a niggardly refusal to supply more ships."

"More ships!" She blazed away, hotly, "And haven't you five? Don't deny it. I *know* you have five; and a sixth is promised."

"Promised for the last year."

"But one—just one—can blast that Foundation into stinking rubble. Just one! One, to sweep their little pygmy boats out of space, with their cargoes of toys and trash."

"Those toys and trash mean money—a good deal of money."

But if you had the Foundation, would you not have all it contained? And if you had my father's respect and gratitude, would you not have more than ever the Foundation could give you? It's been three years—more—since that barbarian came with his magic sideshow. It's long enough."

"My dear!" The Commdor turned and faced her. "I am growing old. I am weary. I lack the resilience to withstand your rattling mouth. You say you know that I have decided. Well, I have. It is over, and there is war between Korell and the Foundation."

"Well!" The Commdora's figure expanded and her eyes sparkled, "you learn wisdom in your dotage. And now when you are master of this hinterland, you may be sufficiently respectable to be of some weight and importance in the Empire. For one thing, we might leave this barbarous world and attend the viceroy's court. Indeed we might."

She swept out, with a smile, and a hand on her hip. Her hair gleamed in the light.

The Commdor waited, and then said to the closed door, with malignance and hate, "And when I am master of what you call the hinterland, I may be sufficiently respectable to do without your father's arrogance and his daughter's tongue. Completely—without!"

The senior lieutenant of the *Dark Nebula* stared in horror at the visiplate.

"Great Galloping Galaxies!" It should have been a howl, but it was a whisper instead, "What's that?"

It was a ship, but a whale to the *Dark Nebula*'s minnow; and on its side was the Spaceship-and-Sun of the Empire. Every alarm on the ship yammered hysterically.

The orders went out, and the *Dark Nebula* prepared to run if it could, and fight if it must—while down in the ultrawave room, a message stormed its way through hyperspace to the Foundation.

Over and over again! Partly a plea for help, but mainly a warning of danger.

Hober Mallow shuffled his feet wearily, as he leafed through the reports. Two years of the mayoralty had made him a bit more housebroken, a bit softer, a bit more patient—but it had not made him learn to like government reports and the mind-breaking officialese in which they were written.

"How many ships did they get?" asked Jael.

"Four trapped on the ground. Two unreported. All others accounted for and safe." Mallow grunted, "We should have done better, but it's just a scratch."

There was no answer and Mallow looked up, "Does anything worry you?"

"I wish Sutt would get here," was the almost irrelevant answer.

"Ah, yes, and now we'll hear another lecture on the home front."

"No, we won't," snapped Jael, "but you're stubborn, Mallow. You may have worked out the foreign situation to the last detail but you've never given a care about what goes on here on the Foundation."

"Well, that's your job, isn't it? What did I make you Minister of Education and Propaganda for?"

"Obviously to send me to an early and miserable grave, for all the cooperation you give me. For the last year, I've been deafening you with the rising danger of Sutt and his Religionists. What good will your plans be, if Sutt forces a special election and has you thrown out?"

"None, I admit."

"And your speech last night just about handed the election to Sutt with a smile and a pat. Was there any necessity of being so frank?"

"Isn't there such a thing as stealing Sutt's thunder?"

"No," said Jael, violently, "not the way you did it. You claim to have foreseen everything, and don't explain why you traded with Korell to their exclusive benefit for three years. Your only plan of battle is to retire without a battle. You abandon all trade with the sectors of space near Korell. You openly proclaim a stalemate. You promise no offensive, even in the future. Galaxy, Mallow, what am I supposed to do with such a mess?"

"It lacks glamour?"

"It lacks mob emotion-appeal."

"Same thing."

"Mallow, wake up. You have two alternatives. Either you present the people with a dynamic foreign policy—whatever your private plans—or you make some sort of compromise with Sutt."

Mallow said, "All right, if I've failed the first, let's try the second. Sutt's just arrived."

Sutt and Mallow had not met personally since the day of the trial, two years back. Neither detected any change in the other, except for that subtle atmosphere about each which made it quite evident that the roles of ruler and defier had changed.

Sutt took his seat without shaking hands.

Mallow offered a cigar and said, "Mind if Jael stays? He wants a compromise earnestly. He can act as mediator if tempers rise."

Sutt shrugged, "A compromise will be well for you. Upon another occasion I once asked you to state your terms. I presume the positions are reversed now."

"You presume correctly."

"Then these are my terms. You must abandon your blundering policy of economic bribery and trade in gadgetry, and return to the tested foreign policy of our fathers."

"You mean conquest by missionary."

"Exactly."

"No compromise short of that?"

"None."

"Um-m-m," Mallow lit up very slowly, and inhaled the tip of his cigar into a bright glow. "How would you get us out of our present mess?"

"*Your* present mess. I had nothing to do with it."

"Consider the question suitably modified."

"A strong offensive is indicated. The stalemate you seem to be satisfied with is fatal. It would be a confession of weakness to all the worlds of the Periphery, where the appearance of strength is all-important, and there's not one vulture among them that wouldn't join the assault for its share of the corpse. You ought to understand that. You're from Smyrno, aren't you?"

Mallow passed over the significance of the remark. He said, "And if you beat Korell, what of the Empire? *That* is the real enemy."

Sutt's narrow smile tugged at the corners of his mouth, "Oh, no, your records of your visit to Siwenna were complete. The viceroy of the Normanic Sector is interested in creating dissension in the

Periphery for his own benefit, but only as a side issue. He isn't going to stake everything on an expedition to the Galaxy's rim when he has fifty hostile neighbors and an emperor to rebel against. I paraphrase your own words."

"Oh, yes he might, Sutt, if he thinks we're strong enough to be dangerous. And he might think so, if we destroy Korell by the main force of frontal attack. We'd have to be considerably more subtle."

"As, for instance—"

Mallow leaned back, "Sutt, I'll give you your chance. I don't need you, but I can use you. So I'll tell you what it's all about, and then you can either join me and receive a place in a coalition cabinet, or you can play the martyr and rot in jail."

"Once before you tried that last trick."

"Not very hard, Sutt. The right time has only just come. Now listen." Mallow's eyes narrowed.

"When I first landed on Korell," he began, "I bribed the Commdor with the trinkets and gadgets that form the trader's usual stock. At the start, that was meant only to get us entrance into a steel foundry. I had no plan further than that, but in that I succeeded. I got what I wanted. But it was only after my visit to the Empire that I first realized exactly what a weapon I could build that trade into.

"This is a Seldon crisis we're facing, Sutt, and Seldon crises are not solved by individuals but by historic forces. Hari Seldon, when he planned our course of future history, did not count on brilliant heroics but on the broad sweeps of economics and sociology. So the solutions to the various crises must be achieved by the forces that become available to us at the time.

"In this case—trade."

Sutt raised his eyebrows skeptically and took advantage of the pause, "I hope I am not of subnormal intelligence, but the fact is that your vague lecture isn't very illuminating."

"Well, then," said Mallow, wearily, "let us become very simple and specific. Korell is now at war with us. Consequently our trade with her has stopped. *But* . . . notice that I am making this as simple as a problem in addition . . . in the past three years she has based her economy more and more upon the atomic techniques which we have introduced and which only we can continue to supply. Now what do you suppose will happen once the tiny atomic generators begin failing, and one gadget after another goes out of commission.

"The small household appliances go first. After half a year of this stalemate that you abhor, a woman's atomic knife won't work any more. Her stove begins failing. Her washer doesn't do a good job. The temperature-humidity control in her house dies on a hot summer day. What happens?"

He paused for an answer, and Sutt said calmly, "Nothing. People endure a good deal in war."

"Very true. They do. They'll send their sons out in unlimited numbers to die horribly on broken

spaceships. They'll bear up under enemy bombardment, if it means they have to live on stale bread and foul water in caves half a mile deep. But it's very hard to bear up under little things when the patriotic uplift of imminent danger is not present. It's going to be a stalemate. There will be no casualties, no bombardments, no battles.

"There will just be a knife that won't cut, and a stove that won't cook, and a house that freezes in the winter. It will be annoying and people will grumble."

Sutt said slowly, wonderingly, "Is that what you're setting your hopes on, man? What do you expect? A housewives' rebellion. A Jacquerie? A sudden uprising of butchers and grocers with their cleavers and breadknives shouting, 'Give us back our Automatic Super-Kleeno Atomic Washing Machines.'"

"No, sir," said Mallow, impatiently, "I do not. I expect, however, a general background of grumbling and dissatisfaction which will be seized on by more important figures later on."

"And what more important figures are these?"

"The manufacturers, the factory owners, the industrialists of Korell. When two years of the stalemate have gone, the machines in the factories will, one by one, begin to fail. Those industries which we have changed from first to last with atomic gadgets, will find themselves very suddenly ruined. The heavy industries will find themselves en masse and at a stroke the owners of nothing but scrap machinery that won't work."

"The factories ran well enough before you came there, Mallow."

"Yes, Sutt, so they did—at about one-twentieth of the profits, without counting the cost of reconversion. With the industrialist and the financier and the average man all against him, how long will the Commdor hold out?"

"As long as he pleases, as soon as it occurs to him to get new atomic generators from the Empire."

And Mallow laughed joyously, "You've missed, Sutt, missed as badly as the Commdor himself. You've missed everything, and understood nothing. Look, man, the Empire can replace nothing. The Empire has always been a realm of colossal resources. They've calculated everything in planets, in stellar systems, in whole sectors of the Galaxy. Their generators are gigantic because they thought in gigantic fashion.

"But we . . . *we*, our little Foundation, our single world almost without metallic resources, have had to work with brute economy. Our generators have had to be the size of our thumb, because it was all the metal we could afford. We had to develop new techniques and new methods—techniques and methods the Empire can't follow because they have degenerated past the stage where they can make any really vital scientific advance.

"With all their atomic shields, large enough to protect a ship, a

city, an entire world; they could never build one to protect a single man. To supply light and heat to a city, they have motors six stories high—I saw them—where ours could fit into this room. And when I told one of their atomic specialists that a lead container the size of a walnut contained an atomic generator, he almost choked with indignation on the spot.

"Why, they don't even understand their own colossi any longer. They work from generation to generation by themselves, and the caretakers are a hereditary caste who would be helpless if a single D-tube in all that vast structure burnt out.

"The whole war is a battle between those two systems; between the Empire and the Foundation; between the big and the little. To seize control of a world, they bribe with immense ships that can make war, but lack all economic significance. We on the other hand, bribe with little things, useless in war, but vital to prosperity and profits.

"A king, or a Commdor, will take the ships and even make war. Arbitrary rulers throughout history have bartered their subjects' welfare for what they consider honor, and glory, and conquest. But it's still the little things in life that count—and Asper Argo won't stand up against the economic depression that will sweep all Korell in two or three years."

Sutt was at the window, his back to Mallow and Jael. It was early evening now, and the few stars that struggled feebly here at the very rim of the Galaxy sparked against the background of the misty, wispy Lens that included the remnants of that Empire, still vast, that fought against them.

Sutt said, "No. You are not the man."

"You don't believe me?"

"I mean I don't trust you. You're smooth-tongued. You befooled me properly when I thought I had you under proper care on your first trip to Korell. When I thought I had you cornered at the trial, you wormed your way out of it and into the mayor's chair by demagoguery. There is nothing straight about you; no motive that hasn't another behind it; no statement that hasn't three meanings.

"Suppose you were a traitor. Suppose your visit to the Empire had brought you a subsidy and a promise of power. Your actions would be precisely what they are now. You would bring about a war after having strengthened the enemy. You would force the Foundation into inactivity. And you would advance a plausible explanation of everything, one so plausible it would convince everyone."

"You mean there'll be no compromise?" asked Mallow, gently.

"I mean you must get out, by free will or force."

"I warned you of the only alternative to co-operation."

Jorane Sutt's face congested with blood in a sudden access of emotion, "And I warn you, Hober Mallow of Smyrno, that if you arrest me, there will be no quarter. My men will stop nowhere in spread-

ing the truth about you, and the common people of the Foundation will unite against their foreign ruler. They have a consciousness of destiny that a Smyrnian can never understand—and that consciousness will destroy you."

Hober Mallow said quietly to the two guards who had entered, "Take him away. He's under arrest."

Sutt said, defiantly, "Your last chance."

Mallow stubbed out his cigar and never looked up.

And five minutes later, Jael stirred and said, wearily, "Well, now that you've made a martyr for the cause, what next?"

Mallow stopped playing with the ash tray and looked up, "That's not the Sutt I used to know. He's a blood-blind bull. Galaxy, he hates me."

"All the more dangerous then."

"More dangerous? Nonsense! He's lost all power of judgment."

Jael said grimly, "You're overconfident, Mallow. You're ignoring the possibility of a popular rebellion."

Mallow looked up, grim in his turn, "Once and for all, Jael, there is no possibility of a popular rebellion."

"You're sure of yourself!"

"I'm sure of the Seldon crisis and the historical validity of their solutions, externally *and* internally. There are some things I *didn't* tell Sutt right now. He tried to control the Foundation itself by religious forces as he controlled the outer worlds, and he failed—which is the surest sign that in the Seldon scheme, religion is played out.

"Economic control worked differently. And, to paraphrase that famous Salvor Hardin quotation of yours, it's a poor atom blaster that won't point both ways. If Korell prospered with our trade, so did we. If Korellian factories fail without our trade; and if the prosperity of outer worlds vanishes with commercial isolation; so will our factories fail and our prosperity vanish.

"And there isn't factory, not a trading center, not a shipping line that isn't under my control.

"So by the same reasoning which makes me sure that the Korellians will revolt in favor of prosperity, I am sure we will not revolt against it. The game will be played out to its end."

"So then," said Jael, "you're establishing a plutocracy. You're making us a land of traders and money barons. Then what of the future."

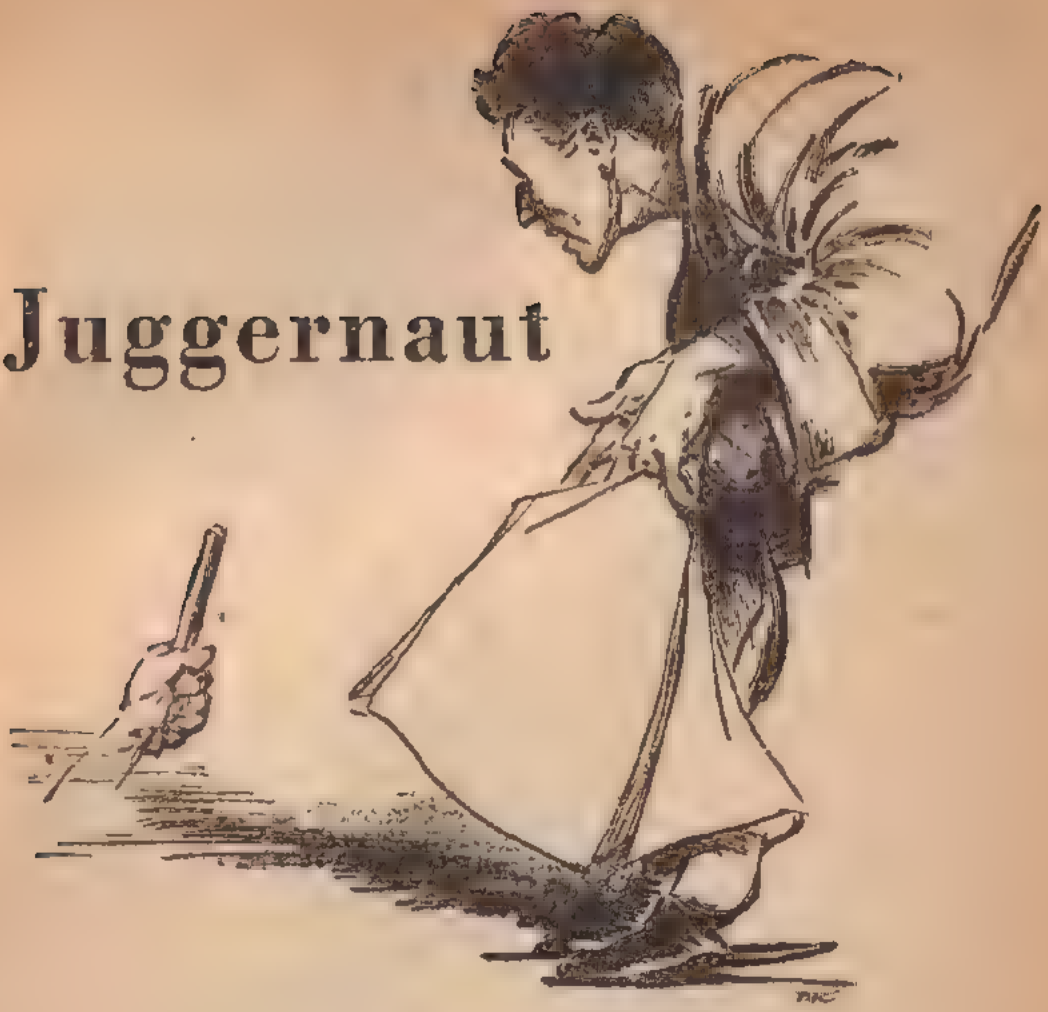
Mallow lifted his gloomy face, and exclaimed fiercely, "What business of mine is the future? No doubt Seldon has foreseen it and prepared against it. There will be other crises in the time to come. Let my successors solve those, as I have solved this."

"And after three years of War which was no War, the Korellian Republic surrendered unconditionally—"

("Essays on History," Ligurn Vier)

THE END.

Juggernaut



by A. E. VAN VOGT

From nowhere at all the little bar of metal came—a special, very, very super steel. Made wonderful weapons. But there was, they realized much too late, a catch to it. It spread—and it was too good!

Illustrated by Kramer

The man—his name was Pete Creighton, though that doesn't matter—saw the movement out of the corner of his eye, as he sat reading his evening paper.

A hand reached out of the nothingness of the thin air about two feet above the rug. It seemed to grope, then drew back into nothingness. Almost instantly it reappeared, this time holding a small, dully glinting metal bar. The fingers let go of the bar, and drew out of sight, even as the metal thing started to fall towards the floor.

THUD! The sound was vibrant.

It shook the room.

Creighton sat jerkily up in his chair, and lowered his paper. Then he remembered what he had seen. Automatically, his mind rejected the memory. But the fantastic idea of it brought him mentally further into the room.

He found himself staring at an ingot of iron about a foot long and two inches square. That was all. It lay there on the rug, defying his reason.

"Cripes!" said Creighton.

His wife, a sad-faced woman, came out of the kitchen. She stared at him gloomily. "What's the matter now?" she intoned.

"That iron bar!" Her husband, half-choked, pointed. "Who threw that in here?"

"Bar?" The woman looked at the ingot in surprise. Her face cleared. "Johnny must have brought it in from the outside."

She paused, frowned again; then added: "Why all the fuss about a piece of scrap iron?"

"It fell," Creighton babbled. "I saw it out of the corner of my eye. A hand dropped it right out of the—"

He stopped. Realization came of what he was saying. He swallowed hard. His eyes widened. He bent sideways in his chair, and grabbed convulsively for the metal bar.

It came up in his strong fingers. It was quite heavy. Its weight and its drab appearance dimmed his desire to examine it thoroughly. It was a solid ingot of iron, nothing more, nor less. His wife's tired voice came again:

"Johnny must have stood it up on one end, and it fell over."

"Huh-uh!" said her husband.

He found himself anxious to accept the explanation. The curious sense of alien things faded before the normalness of it. He must have been daydreaming. He must have been crazy.

He put the bar down on the floor. "Give it to the next scrap drive!" he said gruffly.

Hour after hour, the Vulcan Steel & Iron Works roared and yammered at the undefended skies. The din was an unceasing dirge, lustily and horrendously sounding the doom of the Axis. It was a world of bedlam; and not even an accident could stop that over-all bellowing of metal being smashed and tormented into new shapes.

The accident added a minor clamor to the dominating theme of stupendous sound. There was a screech from a cold roller machine, than a thumping and a sound of metal tearing.

One of the men operating the machine emitted some fanciful verbal sounds, and frantically manipulated the controls. The thumping and the tearing ceased. An assistant foreman came over.

"What's wrong, Bill?"

"That bar!" muttered Bill. "I was just starting to round it, and it bent one of the rollers."

"*That* bar!" echoed the assistant foreman incredulously.

He stared at the little thing. It was a big bar to be going through a roller. But compared to the siz-

able steel extrusions and moldings turned out by the Vulcan works, it was tiny.

It was six feet long, and it had originally been two inches square. About half of its length had been rolled once. At the point where the strength of the rollers had been bested, the metal of the bar looked exactly the same as that which had gone before. Except that it had refused to round.

The assistant foreman spluttered, and then fell back on a technicality. "I thought it was understood," he said, "that in the Vulcan plants nothing over an inch and a half is rounded by rollers."

"I have had dozens of 'em," said Bill. He added doggedly. "When they come, I do 'em."

There was nothing to do but accept the reality. Other firms, the assistant foreman knew, made a common practise of rolling two inchers. He said:

"O. K., take your helper and report to Mr. Johnson. I'll have a new roller put in here. The bent one and that bar go to the scrap heap."

He could not refrain from add-

ing: "Hereafter send two-inch bars to the hammers."

The bar obediently went through the furnace again. A dozen things could have happened to it. It could have formed part of a large molding. It could have, along with other metal, endured an attempt to hammer it into sheer steel.

It would have been discovered then, its basic shape and hardness exposed.

But the wheels of chance spun—and up went a mechanical hammer, and down onto the long, narrow, extruded shape of which the original ingot was a part.

The hammer was set for one and one quarter inches, and it clanged with a curiously solid sound. It was a sound not unfamiliar to the attendant, but one which oughtn't to be coming from the pummeling of white-hot metal.

It was his helper, however, who saw the dents in the base of the hammer. He uttered a cry, and pulled out the clutch. The older man jerked the bar clear, and stared at the havoc it had wrought.

"Yumpin' yimminy!" he said. "Hey, Mr. Yenkins, come over here, and look at this."

Jenkins was a big, chubby man who had contributed fourteen ideas for labor-saving devices before and since he was made foreman. The significance of what he saw now was not lost on him.

"Ernie's sick today," he said. "Take over his drill for a couple of hours, you two, while I look into this."

He phoned the engineering department; and after ten minutes Boothby came down, and examined the hammer.

He was a lean-built, precise young man of thirty-five. On duty he wore horned-rimmed glasses, behind which gleamed a pair of bright-blue eyes. He was a craftsman, a regular hound for precision work.

He measured the dents. They were a solid two inches wide: and the hammer and its base shared the depth equally.

In both, the two-inch wide, one-foot long gouge was exactly three eighths of an inch deep, a total for the two of three quarters of an inch.

"Hm-m-m," said Boothby, "what have we got here . . . a super-super hard alloy, accidentally achieved?"

"My mind jumped that way," said Mr. Jenkins modestly. "My name is Jenkins. Wilfred Jenkins."

Boothby grinned inwardly. He recognized that he was being told very quietly to whom the credit belonged for any possible discovery. He couldn't help his reaction. He said:

"Who was on this machine?"

Jenkins' heavy face looked unhappy. He hesitated.

"Some Swede," he said reluctantly. "I forget his name."

"Find it out," said Boothby. "His prompt action in calling you is very important. Now, let's see if we can trace this bar back to its source."

He saw that Jenkins was happy again. "I've already done that," the foreman said. "It came out of a pot, all the metal of which was derived from shop scrap. Beyond

that, of course, it's untraceable."

Boothby found himself appreciating Jenkins a little more. It always made him feel good to see a man on his mental toes.

He had formed a habit of giving praise when it was deserved. He gave it now, briefly, then finished:

"Find out if any other department has recently run up against a very hard metal. No, wait, I'll do that. You have this bar sent right up to the metallurgical lab."

"Sent up hot?" asked Jenkins.

"Now!" said Boothby, "whatever its condition. "I'll ring up Nadderly . . . er, Mr. Nadderly, and tell him to expect it."

He was about to add: "And see that your men don't make a mistake, and ship the wrong one."

He didn't add it. There was a look on Jenkins' face, an unmistakable look. It was the look of a man who strongly suspected that he was about to win his fifteenth bonus in two and a half years.

There would be no mistake.

A steel bar 2"x2"x12"—tossed out of hyper-space into the living room of one, Pete Creighton, who didn't matter—

None of the individuals mattered. They were but pawns reacting according to a pattern, from which they could vary only if some impossible change took place in their characters. Impossible because they would have had to become either more or less than human.

When a machine in a factory breaks down, its operator naturally has to call attention to the fact. All the rest followed automatically out of the very nature of things. An alert foreman, and alert engineer, a skillful metallurgist; these were normal Americans, normal Englishmen, normal—Germans!

No, the individuals mattered not. There was only the steel ingot, forming now a part of a long, narrow bar.

On the thirtieth day, Boothby addressed the monthly meeting of the Vulcan's board of directors. He was first on the agenda, so he had had to hustle. But he was in a high good humor as he began:

"As you all know, obtaining information from a metallurgist"—he paused and grinned inoffensively at Nadderly, whom he had invited down—"is like obtaining blood from a turnip. Mr. Nadderly embodies in his character and his science all the caution of a Scotchman who realizes that it's time he set up the drinks for everybody, but who is waiting for some of the gang to depart.

"I might as well warn you, gentlemen, that he is fully aware that any statement he has made on this metal might be used against him. One of his objections is that thirty days is a very brief period in the life of an alloy. There is an aluminum alloy, for instance, that requires forty days to age harden.

"Mr. Nadderly wishes that stressed because the original hard alloy, which seems to have been a bar of about two inches square by a foot long, has in fifteen days *imparted* its hardness to the rest of the bar, of which it is a part.

"Gentlemen"—he looked earnestly over the faces—"the hardness of this metal cannot be stated or estimated. It is not just so many times harder than chromium or molybdenum steel. It is hard beyond all calculation.

"Once hardened, it cannot be machined, not even by tools made of itself. It won't grind. Diamonds do not even scratch it. Cannon shells neither dent it nor scratch it. Chemicals have no effect. No heat we have been able to inflict on it has any softening effect.

"Two pieces welded together—other metal attaches to it readily—impart the hardness to the welding. Apparently, any metal once hardened by contact with the hard metal, will impart the hardness to any metal with which it in turn comes into contact.

"The process is cumulative and endless, though, as I have said, it seems to require fifteen days. It is during this fortnight that the metal can be worked.

"Mr. Nadderly thinks that the hardness derives from atomic, not molecular processes, and that the impulse of hardness is imparted much as radium will affect metals with which it is placed in contact. It seems to be harmless, unlike radium, but—"

Boothby paused. He ran his gaze along the line of intent faces, down one side of the board table and up the other.

"The problem is this: Can we

after only thirty days, long before we can be sure we know all its reactions, throw this metal into the balance against the Axis?"

Boothby sat down. No one seemed to have expected such an abrupt ending, and it was nearly a minute before the chairman of the board cleared his throat and said:

"I have a telegram here from the Del-Air Corporation, which puzzled me when I received it last night, but which seems more understandable in the light of what Mr. Boothby has told us. The telegram is from the president of Del-Air. I will read it, if you please."

He read:

"'We have received from the United States Air Command, European Theater, an enthusiastic account of some new engines which we dispatched overseas some thirteen days ago by air. Though repeatedly struck by cannon shells, the cylinder blocks of these engines sustained no damage, and continued in operation. These cylinders were bored from steel blocks sent from your plant twenty days ago. Please continue to send us this marvelous steel, which you have developed, and congratulations.'"

The chairman looked up. "Well?" he said.

"But it's not probable," Boothby protested. "None of the alloy has been sent out. It's up in the metallurgical lab right now."

He stopped, his eyes widening. "Gentlemen," he breathed, "is it possible that any metal, which has been in contact with the super-hard steel for however brief a period, goes through the process of age-hardening? I am thinking of the fact that the original ingot has twice at least been through an arc furnace, and that it has touched various other machines."

He stopped again, went on shakily: "If that is so, then our problem answers itself. We *have* been sending out super-steel."

He finished quietly, but jubilantly: "We can, therefore, only accept the miracle, and try to see to it that no super-tanks or super-machines fall into the hands of our enemies."

After thirty days, the metal impulse was flowing like a streak. In thirty more days it had crossed the continent and the oceans myriad times.

What happens when every tool in a factory is turning out two hundred and ten thousand different parts, every tool is sharing with its product the gentle impulse of an atomically generated force? And when a thousand, ten thousand factories are affected.

That's what happened.

Limitless were the potentialities of that spread, yet there was a degree of confinement. The area between the battle forces in Europe was like an uncrossable moat.

The Germans retreated too steadily. It was the Allies who salvaged abandoned Nazi trucks and tanks, not the other way around. Bombing of cities had stopped. There were no cities.

The gigantic air fleets roared over

the German lines, and shed their bombs like clouds of locusts. By the time anything was touched by the atomic flow, the battle line had advanced a mile or more; and the Allies had the affected area.

Besides, far more than ninety percent of the bombs were from storerooms in that mighty munitions dump which was England. For years the millions of tons of *matériel* had been piling up underground. It was brought up only when needed, and almost immediately and irretrievably exploded.

The few affected bombs didn't shatter. But no one, no German had time to dig them out of the ground.

Day after day after day, the impulse in the metal crept along the battle front, but couldn't cross over.

During those first two months, the Vulcan office staff was busy. There were vital things to do. Every customer had to be advised that the metal must be "worked" within a certain set time. Before that paper job was completed, the first complaints had started to come in.

Boothby only grinned when he read them. "Metal too hard, breaking our tools—" That was the gist.

"They'll learn," he told the third board meeting he attended. "I think we should concentrate our attention on the praises of the army and navy. After all, we are now as never before, working hand-and-glove with the government. Some of these battle-front reports are almost too good to be true. I like particularly the frequent use of the word 'irresistible.'"

It was two days after that that his mind, settling slowly to normalcy from the excitement of the previous ten weeks, gave birth to a thought. It was not a complete thought, not final. It was a doubt that brought a tiny bead of perspiration out on his brow, and it prompted him to sit down, a very shaken young man, and draw a diagrammatic tree.

The tree began with a line that pointed at the word "Vulcan." It branched out to "Factories," then to other factories. It branched again, and again and again, and again and again and again.

It raced along railway tracks. It bridged the seas in ships and planes. It moved along fences and into mines. It ceased to have a beginning and an end. There was no end.

There was no color in Boothby's face now. His eyes behind their owlish spectacles had a glazed look. Like an old man, he swayed up finally from his chair, and, hatless, wandered out into the afternoon. He found his way home like a sick dog, and headed straight for his workroom.

He wrote letters to Nadderly, to the chairman of the board of Vulcan, and to the chief army and navy agent attached to the enormous steel and iron works. He staggered to the nearest mailbox with the letters, then returned to his work room, and headed straight for the drawer where he kept his revolver.

The bullet splashed his brain out over the floor.

Ogden Tait, chairman of the board, had just finished reading the letter from Boothby when the urgent call came for him to come to the smelter.

The letter and the call arriving so close upon one another confused him concerning the contents of the letter. Something about—

Startled, he hurried down to answer the urgent call. An array of plant engineers were there, waiting for him. They had cleared all workmen away from one of the electric arc furnaces. An executive engineer explained the disaster.

Fumbling Boothby's letter, alternately stunned and dismayed, the chairman listened to the chilling account.

"But it's impossible," he gasped finally. "How could the ore arrive here super-hard? It came straight by lake boat from the ore piles at Iron Mountain."

None of the engineers was looking at him. And in the gathering silence, the first glimmer of understanding of what was here began to come to Ogden Tait. He remembered some of the phrases from Boothby's letter: ". . . two million tons of steel and iron sent out in two and one half months . . . spread everywhere . . . no limit—"

His brain began to sway on its base, as the landslide of possibilities unreeled before it. New tracking, Boothby had mentioned, for the interior of the mines. Or new ore cars, or new—

Not only new. Newness didn't matter. Contact was enough; simple, momentary contact. The letter had gone on to say that—

In a blank dismay, he brought it up in his shaking fingers. When he had re-read it, he looked up dully.

"Just what," he said vaguely, "in as few words as possible, will this mean?"

The executive engineer said in a level voice:

"It means that in a few weeks not a steel or iron plant in the United Nations will be in operation. This is Juggernaut with a capital Hell."

It is the people who are not acquainted with all the facts who are extremists. In this group will be found the defeatists of 1940 and

the super optimists of 1943. Careless of logistics, indifferent to realities partially concealed for military reasons, they blunt their reasons and madden their minds with positivities.

In this group were Boothby and the engineers of the Vulcan Steel & Iron Works; and, until he arrived in Washington, the day after sending a dozen terrified telegrams, in this group also was Ogden Tait, chairman of the Vulcan board.

His first amazement came when the members of the war-planning board greeted him cheerfully.

"The important thing," said the Great Man, who was chairman of *that* board, "is that there be no morale slump. I suggest that all the iron ore and metal that is still workable be turned into peace-time machinery, particularly machinery for farm use, which must be heavy as well as strong. There will always be a certain amount of unaffected ore and scrap; and, since any machinery, once completed, will endure forever, it should not take long to supply all the more essential needs of the nation."

"But—but—but—" stammered Ogden Tait. "The w-war!"

He saw, bewildered, that the men were smiling easily. A member glanced at the Great Man.

"May I tell him?"

He was given permission. He turned to Ogden Tait.

"We have generously," he said, "decided to share our secret and wonderful metal with the Axis. Even now our planes are hovering over German and Japanese mines, ore piles, factories, dropping chunks of super-hard steel."

Ogden Tait waited. For the first time in his long, comfortable life, he had the feeling that he was not being very bright. It was a radical thought.

The member was continuing: "In a few months, what remains of the Axis steel industry, after our past bombings, will suspend operations."

He paused, smiling.

"But," Ogden Tait pointed out, "they'll have had three months production while we—"

"Let them have their three months," the member said calmly. "Let them have six months, a year. What do you think we've been doing this last few years? You bet we have. We've been building up supplies. Mountains, oceans, continents of supplies. We've got enough on hand to fight two years of continuous battle.

"The Germans, on the other hand, cannot get along for a single month without fresh munitions.

"The war is accordingly won."

The Great Man interjected at that point: "Whatever prank of fate wished this Juggernaut upon us has also solved the peace forever. If you will think about it for a moment, you will realize that, without steel, there can be no war—"

Whatever prank of fate! . . . A hand reaching out of nothingness into Pete Creighton's living room . . . deliberately dropping an ingot of steel.

THE END.

Renaissance

by RAYMOND F. JONES

Second of three parts. The most difficult of all lessons is learning that there are, and, in any human world, must be grays between the black of evil and the white of good. That the refugee from Kronweld had yet to learn.

Illustrated by Orban

In the world of Kronweld, Ketan is a rebel. He will not admit the right of the Seekers' Council to prevent him or any Seeker investigating the Mystery of the origin of life, the Mysteries of the seldom seen stars or of the great Edge. All human life in Kronweld comes into existence mysteriously within the walls of the forbidden Temple of Birth. Ketan insists that the secrets of the Temple be revealed and engages in forbidden research to discover those secrets.

He is employed as a technician at the Karildex, *a vast machine that integrates the mind and will of the inhabitants of Kronweld into a single unit, a single mind that reflects their mass decision in any given matter. It is the law of Kronweld.*

From the Karildex *Ketan learns*

that investigation into the so-called Sacred Mysteries is against the will of Kronweld, but he asserts that the integration is based on the false knowledge of the people, upon their superstitions and prejudices of centuries.

Employing animals and plants from the barren Dark Land beyond the city, Ketan has discovered the principles of animal and plant reproduction and suspects there may be similarities in human reproduction. He demands a hearing to present these facts before the Seekers' Council and is condemned for his blasphemy.

The night before the hearing he is accosted in the hall of the Karildex *by an old woman named Matra who warns him of imminent danger to Kronweld from a source she calls the Statists. To aid in averting disaster, she orders Ketan to slay Hoult, leader of the Council; Daran, a renowned teacher; and Elta, Ketan's companion to be. Matra says these are of the Statists, and disappears. Ketan confronts Elta with this information, but she is evasive and refuses direct answer.*

After his condemnation, Ketan contrives an escape with Elta to Dark Land through the aid of a sympathetic guard, Varano, but when he is ready to leave, Ketan discovers Elta has gone to the Temple of Birth to become one of the Ladies of the Temple.

He puts Varano in suspended animation and dons female guise by means of which he gains entrance to the Temple. There he finds that the old woman, Matra, is in charge of the Temple and that Elta has come with some secret purpose of her own which she refuses to divulge to him.

In the Chamber of Birth Ketan discovers that human life is not born as he thought but is created in the midst of flaming fires that burst forth at irregular intervals in a niche lying against the great Edge, the infinite, inert wall that bounds Kronweld.

After the first shock of discovery, Ketan discounts what he has seen and believes that even this is not the actual moment of creation. On a second occasion Ketan is alone with Elta in the Chamber and gets a glimpse of a vast concourse of people seen momentarily through the flames that rise up in the niche. He determines that he will stand in those flames next time they form. Elta gives him desperate warning to stay away from them.

There is schism in the Temple group between Matra and a younger subordinate named Anetel who is trying to win the allegiance of the Ladies. Ketan does not concern himself with this until Elta attempts to kill Anetel for some unknown reason. The same night Matra calls Ketan to her as she is dying from poison administered by Anetel and gives him instructions to flee with Elta in whom Matra has seen a change that brings the old woman's approbation.

The attempted escape is anticipated by Anetel, now in control, who condemns Ketan to go through the flames in the Chamber.

At numerous times in his life

Ketan has been plagued by a strange vision of a massive, lone pinnacle of rock in a barren desert. With maddening reality, the pinnacle seems to draw him towards it. But he has no indication of its location or even of its actual existence.

As Ketan enters the flames in the Chamber he seems to see again that pinnacle and realize that he must somehow reach it if he is to save Kronweld from the impending disaster of which Mâtra spoke. And the conviction comes to him that he is on his way to the pinnacle.

XV.

Awakening came like a birth, like that other birth Ketan had known eons ago when he first came into the sunlight out of the golden doors of the Temple. As then, the sun was now blinding his eyes and the physical reality of the world attacked him with a thousand spears.

He shut his eyes against the impact of the blue sky and the globe that rode high upon it. But the whispering of the wind was thunder in his ears. The breath of it was like ice laid across his face, and the rough ground on which he lay tortured the sensitiveness of his flesh.

He opened his eyes cautiously. Whatever nameless existence this might be it was surely not life, nor was this realm Kronweld. He was quite sure that it was not life, yet was there perception in death?

He lay back again and closed his eyes. When he opened them once more, the light in the sky was less and the wind was colder. There was another sound that had impinged upon his senses during the endless era he had lain there, but only now did he understand it. Once before, in Dark Land, he had heard such a sound, the rushing of a mighty stream of water, such as was never known in Kronweld.

Slowly he raised upon his arms and felt the dullness slipping from his mind like a drawn curtain. He was aware of himself, of his own identity once more. Gradually it came back, that last fantastic dream of thundering down eons and across infinity. But it was no dream. His mind jerked back to the reality of the Chamber of Birth.

Elta.

He remembered she was coming with him to—wherever he was. But she had not been at the watcher's seat as she had promised. She had been caught, perhaps slain, for her attack on Anetel.

Uselessness and futility took hold of him as it had done before when Elta had gone to Preparation Center and he had thought her lost. Only this time there was no way back for him. No way back to Kronweld. No way back to Elta.

The ecstasy of attainment of his goal of passing through the great Edge was lost and dimmed by his overwhelming loneliness.

He turned slowly and sat upright. He was in the midst of a forest. There was no sign of house or structure or life. There was no sign of the vast concourse of pleading faces he had seen through the gateway in the Edge. There was no sign of the

great Edge itself, nor yet of the desert and the pinnacle.

Never had he seen such a forest as this. Trees there were in Dark Land, but in the dark and cold, and under the smoke hidden skies they were small and feeble things. The towering columns above and about him now were terrifying as he looked up between them and watched their far tips sway against the sky. A sense of vertigo spun his vision.

He wondered where he was. It was an utterly meaningless question. He was in a special, self-centered, self-created world where he alone would live and die. He wanted to lie back down, but his tortured senses protested further contemplation. He rose and began walking to drive the wonder and terror out of his mind. Driving his feet onward, stepping over stones and branches and guiding his way through the trees reduced his tortured self-questioning.

He found himself descending a slope and the sound of flowing water became louder. In a moment he could see the stream. He stared in fascination. It was a thing of clear beauty. No man of Kronweld had ever before seen such a thing. Water there came only from stagnant, hot pools and had to be artificially cooled. When he advanced and touched his hand in this stream, it was icy.

He drank deeply and resumed his slow picking of a pathway along the bank. He was increasingly conscious of hunger. He wondered if there were Bors or other beasts here as in Dark Land that might be eaten, but he had no weapons.

After a time, the forest began to recede and widen, more sandy beaches lined each side of the stream before they sloped sharply to rocky crags above him.

The sky grew darker as he went down the widening shore. There was no purpose in his mind, only to keep driving his feet and keep his mind from asking questions.

There came a sound that must have been repeated a dozen times before his reluctant senses answered. He stopped and listened. It was a whimpering, crying sound that became a sudden shrill scream. He thought of the Place of Dying in Kronweld where the injured and sick who refused self-death were taken. He had been told that such sounds were heard in the Place.

He hurried his steps. And then he heard a faint rustling in the sand behind him. He turned just in time to see a dirty, ragged creature leap with madness in his eyes. Then a thick arm closed about Ketan's throat and crushed until blackness spattered his vision.

Ketan did not know when the life crushing force was released. He was only aware of returning light to his vision and the dim, far away sound of the stream.

And there was another sound, a heavy, incredulous muttering flowed to his ears.

He struggled to a sitting position. The man who had attacked was sitting up on the ground before Ketan. He stared in amazement.

Then Ketan realized the man was deceived by his woman's disguise.

The man was thick and dark with hairy arms and chest exposed by ragged garments. His face was black with matted beard, but his haggard eyes were young and sharpness still gleamed from them. They stared at Ketan as if to pierce him from beneath their deep cavities that undercut a long, high forehead.

Behind him, Ketan closed his hand on a sharp rock that lay beside the stream. The man opened his mouth in unintelligible mutterings again, and Ketan moved.

His arm whipped around and hurled the rock straight to the man's forehead. There was an instant of surprised pain on the bearded face. Then the man tumbled backwards without a sound. Blood slowly seeped out of the wound and made pools of his eyes and drained into his black beard.

Ketan was sick. The sight of human blood flowing was more than the ordinary Seeker of Kronweld could endure. It was something to bring terror and nausea to the strongest of men.

He rose with a jerky, unnerved motion and hurried away without a backward glance. He was trembling in every muscle.

Then there came that scream of pain and terror once more.

He looked about wildly for its source, but nothing was visible. After a moment he became aware of the smoky haze drifting upon the air and noticed for the first time a low, smoking fire on the beach ahead near the hillside. A narrow mouthed cavern was in the hill directly behind it.

Instinctively, he knew the cry had come from that cave.

If this were a Place of Dying, he wished to avoid it as widely as possible. Imbued all his life with a horror of defective human mechanism, and taught that the only remedy for damage to a body was death, Ketan shrank from the source of those cries that shrilled out upon the air.

Yet there were a group of Seekers in Kronweld, and Ketan had long sympathized with them, who believed that it was inhuman and unnecessary for a human being to die or be killed for some small injury. They believed that human repair was possible.

He shrank back from the approach to the cave, but an inherent compassion drew him on. The sound was like that of a woman in pain. He trudged through the light sand towards the cave mouth.

In the dimness within the cavern he could distinguish nothing. But there was someone there. A voice cried out as he stood in the opening. He entered and stood still, waiting for his eyes to accustom themselves to the dim emission of a light that came from a far corner. He saw that it was a smoking wick suspended in a dish of grease.

When he could see at last he surveyed the cavern. Before him, on a low piled bed of springy tree branches was a woman thrashing about in pain. She was trying to reach a bottle standing in a niche in

the far wall of the cavern. Ketan reached for it and gave it to her.

She looked at him gratefully from glazed eyes, not comprehending his strangeness. She kept crying out a single word as if calling a name.

There was a piece of dirty rag in her hand which she was moistening with the contents of a bottle. Ketan recognized the pungent odor. She put the rag to her nostrils, breathing deeply.

He saw then. She was taking the self-death. He had no right to be there. He rose to leave, but a Seeking curiosity made him wonder why she was there, who she was. Where was the city and the home she had come from?

She had subsided now and the cloth fell from her face. He bent down to replace it so that she might die quickly. As he did so, he saw that her half uncovered body was horribly swollen and distended. He shrank back from the ghastly disfigurement. Never in Kronweld had such a condition been known.

Dimly, a recollection and faint, unbelievable comprehension came. Once—once before he had seen such a condition. The pores of his skin opened and cold sweat oozed through the plastic that covered him.

He had seen it once before.

The Bors.

He snatched the soaked rag from her face and peered closely. She must not die.

Her breath was coming hard and slowly. Ketan felt helpless and bewildered. The goal of all his Seeking seemed within reach and there was nothing he knew to do.

He looked up suddenly as the opening of the cavern was darkened by a wavering shadow that reeled across it. It was made by the man he had left for dead.

Perhaps he did not see Ketan at first in the dimness of the cave for his eyes were not upon him. He staggered across the floor and dropped beside the bed of piled branches.

"Mary!" he cried the single word.

Then he saw Ketan across the bed. He uttered a wild bellow of rage and started to rise, but his glance fell upon the bottle beside Ketan and the cloth in his hand, and went back to the woman.

Slowly, his face softened. A smile of gratitude broke upon its bleakness. He reached out a hand. Hesitatingly, Ketan looked down at it, then extended his own in half understood response.

The questioning contemplation rose in Ketan's mind again. Who were these two? And what land was this? Perhaps it was beyond Dark Land. No man had ever penetrated beyond those far borders. There was only an impenetrable morass of steaming, boiling swamps where nightmare creations of life swam and flew.

For a moment he considered the possibility that he had simply passed through the Edge and had fallen into the barren land spoken of by Anetel. But there was no Edge here, nor did this resemble the land described by her fantastic explanation of the Temple of Birth.

He dismissed the problem. It was trivial beside the momentous occurrence before him. The climax of his Seeking had come. The proof of his heretical theory of life was at hand.

The man across the bed stood up suddenly and motioned Ketan outside. He followed. In the dimming light of day the two stood appraising each other in mutual wonderment. All the while, the ragged, bearded man looked nervously about as if afraid of some unseen pursuer. His tense anxiety transmitted itself to Ketan.

He spoke a brief sentence that sounded like a command, utterly unintelligible to Ketan. Yet something about it struck a weird chord of familiarity. The intonation and the uniting of many basic sounds were the same as in his own language. Still, the words had no meaning to him.

In disgust, the weary, haggard dweller of the cave saw that he didn't understand. He gave up and threw an armful of wood on the fire that was burning before the mouth of the cave. Then he brought out a bundle of stained scraps of cloth and surveyed them in dismay and resignation. He took a short pole from the woodpile and thrust the end into the fire until it began to burn, then drew it quickly out and stuck it upright in the sand.

With a pair of smaller sticks he lifted a rag and held it arm's length away from him over the fire. He let it remain until it began to scorch. Then he draped it on the charred end of the upright pole.

He motioned Ketan to do that with the remainder of the rags. Ketan obeyed, wondering what was the purpose of the mysterious charring of the rags. Perhaps some useless superstition to placate the God. Such was not unknown in Kronweld.

The other man dragged forward a large pot which he erected on supports. With smaller containers, he brought water from the stream, and then built a huge fire beneath the pot and watched impatiently as it slowly heated and boiled.

As a final preparation he brought out a sharp edged knife and held it in the flames, then quickly wrapped it in one of the scorched rags. Lastly, he tied a cloth about his face and washed his hands violently in water and sand and immersed them for a long time in painfully hot water and held them over the flames. Drying, he wrapped his hands in squares of the cloth. All this he indicated to Ketan to imitate.

Low moanings and steadily increasing cries that chilled Ketan had been coming from the cavern. The two hurried in.

The woman was moving about in wild agony. The man uttered a low, cursing sound from his throat and drew her back to the center of the bed. He moistened the cloth further with the liquid in the bottle and applied a touch of it to her nostrils. He motioned Ketan to hold her arms and keep her pinned down. Ketan obeyed, hardly able

to look upon her monstrous, distorted form.

In a sickening wave of nausea that rendered him half conscious, he obeyed the motioned instructions of the bearded man. But they were few. He was working in a tight frenzy of fear. It transmitted itself to Ketan. He knew that something was wrong, but not what it was. He realized only a great fear and terror that filled the small confines of the cave and seemed to be drawing his life out slowly with each breath.

An eternity of time passed. The woman shuddered beneath Ketan's hands, but it was becoming fainter. Then the man rose to his feet, holding a tiny, red animal form. He spanked it smartly and held its mouth to his and breathed long and slowly.

A haze seemed to swirl about Ketan and surged over him. His life-long conditioning to revulsion at biological manifestations had not been even partially overcome by his own unregistered investigations and his experience with the Bors.

This was birth. This was the beginning of life. Somewhere at his own beginning, there had been just such a scene. Somewhere there might yet be the woman who had contained him. What horror it would be to meet her and know—

He understood the reaction of the members of the First Group when he had spoken of this thing.

Yet there was another, unknown feeling that tempered his revulsion. In a world where all men knew how they were created, there could not be universal ignorance of those by whom they were given life. He wondered fleetingly what kind of a world that would be, what kind of relationships would exist between people in such a world.

He let his glance fall upon the bearded man who held the tiny human. There were only worry, fear, and something Ketan could not name registered on the man's face.

Ketan thought of Elta and shuddered.

He felt a sudden change in the woman whose arms he held still tightly upon the bough bed. She jerked convulsively. Then she was still. He looked at her quiet, distorted face and felt for her breathing and the beating of her heart.

Slowly, in fascinated horror, he drew away. It was as if her flesh had turned to some alien substance. For the second time he had watched a human being die. After a timeless age a single thought swept through his brain. It was of Elta. Did a life always mean a death?

His glance went to the bearded man who was standing like a stone image, the red little form hanging loosely in his arms.

They remained thus for an indeterminate time. There was no sound but the faint, faraway bubbling of the stream and the occasional crackling of the smoking grease that gave them light.

The stillness was broken by the sharp cry of anguish that came from the tattered, bearded man. He dropped the still body from his

arms and sank beside the two lifeless figures, burying his head upon the woman's breast.

Ketan walked slowly from the cavern to the glistening stream. The globe was at the base of the sky and shadows leaped out in long, dark fingers from the tops of the trees.

A freezing chill was in the air, something almost unknown to Ketan. But there was more that made his body tremble. He had seen death again.

And the newly created life—what had become of it? There had never been life there. Something was horribly wrong. Surely such things were not meant to be. The creation of life could not mean such terror and death as the woman had suffered—and such sorrow as he had felt welling out of the man.

There was a step behind him. He turned upon the man. The dark burning eyes stared out at him half seeing, but the thick, shaggy arm that beckoned was not to be withstood. Ketan followed him back to the cave.

Inside, he indicated that Ketan was to wrap the dead bodies with the few rags and coverings that were available. Somehow, Ketan felt glad to be able to help him, though he had no idea what purpose lay behind this.

When he was finished, he went out and found the man scooping a deep hole in the sands. Wondering at its purpose, Ketan bent to help. The glowing coals of the fire gave the only light by the time they were through. Treading heavily, the man entered the cave and returned slowly, bearing the tightly wrapped forms of the woman and the infant.

He lowered them tenderly into the hole in the sand. With a soft, windlike sound the sand was brushed back over the bodies and formed a low mound. And all was stillness once more.

The second globe was rising, now, Ketan saw. It was coming up over the low hills from whence the stream was flowing. But something was wrong with it. It was a pale, insignificant thing that spread only a cold silvery light over the landscape. For the first time Ketan felt a surge of fear. This unnatural globe spoke of a universe where Kronweld's existence was a mere fantasy.

He turned to the man. The latter was standing still, face contorted with utter bitterness, bathed in the silver glow. With a shudder, his body gathered into itself in a contraction that seemed to swell and shrink him at once. Every muscle was drawn to the limit of its power. He stood out, a fearful silhouette of black and silver.

And one mighty fist was raised in the night, testifying to the sudden burst of rage and berserk fury that poured from his throat. Then that fist came down and pressed brutally against his face as his shoulders hunched over that mound in the sand.

He raised and sprang away. Before Ketan's eyes could distinguish the point of the shadowy forest at which he headed, he was gone.

Fear closed down upon Ketan. The mad, meaningless drama he had witnessed that afternoon haunted reason from his mind. The utterly foreign surroundings bespoke only nightmare creations, and his body ached from its exertions and lack of food.

Wearily, he spread the robe on the hard sand and lay upon it, not daring the ghosts that stood watch in the cavern. The fire died and he slept.

XVI.

In the nighttime it came again—the dream and the vision. But it was like a waking vision and not a dream of night and a tired mind. It seemed to open before him and around him slowly, as if in creation while he watched. The ocean of sand undulated and swirled and became solid. Without being aware of rising, he was upon his feet and they *were* pumping endlessly through the dragging sands.

He was closer to the pinnacle of rock than he had ever been before. It rose a hundred times his height above the desert floor. Sheer walls shot up on every side, but he knew how to reach the top.

He drew nearer. The whining

sands rose to sting his face like sparkling needles surging upon him in air-borne waves. A low moan spoke from all the desert as if it were one mighty voice. The cloud of sand increased and beat about his head. It obscured his vision. blinded, he slogged on. Then there came again the voice—

"You must not fail, Lonely One. All my world lies in your hands. Come—"

He awoke trembling with cold. The sculptored plastic served well to conserve body heat, but it and the induction robes did not entirely suffice for clothing.

He looked about for material to build a fire, though he did not know how he was going to make one without a radioactive starter.

Then the smell of smoke and the crackling of burning wood came to him. He turned. Down at the edge of the stream a fire was roaring, and before it a man sat on his haunches gnawing fiercely at a huge chunk of meat. It was the bearded man of the night before.

Ketan moved down the beach, uncertain of how he would be met, but his steps quickened as he felt the radiant heat of the fire.

He paused and looked at the man. Indifferently, and with no expression upon his face, he offered Ketan a slab of meat that had been roasting over the flames. Gladly, Ketan accepted it and squatted upon the warm sand.

Partially satisfied, Ketan looked at the remains of the carcass from which they were eating. It was a fairly large animal with a smooth, brown hide and with forked horns bearing many points upon its head. It was not as large or as heavily built as the Bors.

When Ketan turned back to him the bearded man had finished eating, and his head was buried between his knees. He looked up as Ketan stirred. A half dozen strangely familiar words came slowly from his lips.

Ketan thought he was being asked who he was. He told the bearded one, who seemed to listen attentively. He seemed to evince a half comprehension even as did Ketan and their verbal exchange was begun. Ketan decided there was yet an advantage in his disguise and kept his voice at falsetto pitch.

The man indicated his name as William Douglas. To Ketan it sounded as if it were two names, but he accepted both since the man indicated no preference for one or the other.

The wound that Ketan had inflicted the day before was caked with dry blood and swollen. After the meal, William Douglas washed the wound at the stream and then went into the woods. He returned with a few leaves that he chewed and matted together and bound to his head with a strip torn from his clothing.

He poured water and sand over the fire. Expertly, he cut the two hind quarters from the carcass and hoisted them on his shoulders. Ketan suggested he carry some. William Douglas looked at the female disguise questioningly, then gave him a forequarter.

They started down the beachway. William Douglas did not look back towards the spot where the woman and the little human were buried in the sand.

There was no question in Ketan's mind about following the man. There was nothing else to do. He wanted to learn to speak with him, to find out where he came from, and where this strange, wild land was.

Most of all, he wanted to assuage the loneliness that was like hunger within him. Companionship in this alien land was worth life itself. His mind had shaken off its shocked lethargy of the day before somewhat, and he recognized that this was certainly not death, as he had fantastically presumed. Nor did the bridge of time and space he had crossed lead to any land in the world of Kronweld. He had come through the Edge, he was certain.

But where was the Edge? Why was it not visible here?

And ever, his thoughts went back to Elta. He must somehow find a way back, hoping until all reason for hope was gone that she might yet be safe.

Hampered by the burden of the meat and the inability to use sign language helps, their attempts at conversation went lamely for a time, but Ketan began swiftly gaining a vocabulary in the language of William Douglas. It became obvious that Ketan would do the learning, rather than vice versa.

William Douglas told him they were heading for a village of about two hundred inhabitants and that they should reach there by nightfall.

Ketan inquired about the globes in the sky. He tried to indicate that there should be two of nearly equal brightness, but it was impossible to make the man understand that.

He pointed upward with the stub of the hindquarter he carried. "Sun," he said. "Last night you saw the moon."

Ketan's mind began to accept that those were the only two globes visible. But it floundered when he tried to conceive them as *different* globes from those he knew. He gave it up to the ever growing list of inexplicables.

There was a more burning quest that his mind would not relinquish and now he tried to describe it. Half in words of William Douglas' language, and half in his own, he said, "I want to find a desert place where there is only sand and a great rock that reaches *up*."

Bending down, he drew a wide circle in the sand and placed a sliver of rock in its center, then he stood up to indicate the horizon and the great height of the rock above him.

William Douglas looked puzzled. He pointed into the far distance through the trees. "Desert," he said. "Sand." But he indicated the rock and shook his head.

They moved on and the day grew late. It was almost dark in the depths amid the trees. Earlier, William Douglas had kept a cautious glance roving constantly about, but now he marched straight on with-

out glancing aside, as if whatever danger he had once feared were now removed.

Ketan despaired of finding the pinnacle. If only there were some indications where it was, something more than the endless blowing sand. Perhaps it had no counterpart in reality at all. Perhaps it was only the result of some early intense stimulus that repeated the dream when his mind was tense and strained.

But he didn't believe that. He believed, with no rational excuse for doing so, that the pinnacle was real, that somewhere it existed and that he must find it or go mad. The first time the vision had come, he recalled, was the first night he spent out of the Temple after his birth into Kronweld. It had terrified him, for he had not been asleep. He was sure of that. He had been awake in a room with others, listening to one of the Teachers. Suddenly all his surroundings had blanked out and he found himself trudging through that desert seeking that faraway pinnacle, which was then on the horizon.

Each time, each of the eighteen times, it had seemed closer, as if he were slowly progressing in that other existence towards his goal. Sometimes he wondered if that were the real world and all of Kronweld was only his dream.

Night came swiftly in the forest, but William Douglas did not slow his pace. They had stopped at midday for a rest and another meal of the meat, but now they kept going. They were near the village, William Douglas said.

Ketan wondered what would happen when he got there. What would he do? Would his life become an endless quest for the pinnacle and the way back to Elta?

So intent was he upon his own thoughts that he didn't notice that William Douglas had stopped until he bumped into him. The man had topped a low rise and now stood immobile, staring down. Ketan came up and followed his silent gaze with his own eyes.

Below them, in a tiny valley, smoke rose in a slow, grayish mass from a hundred dimly glowing fires. It must have burned all day, Ketan thought, and now was dying out.

From William Douglas' throat there came a low animal sound that Ketan knew was not words, but it conveyed unmistakably its world of despair and anguish.

There was not a dwelling left standing as they descended the hill and walked among the smoking ruins. They came to the center and William Douglas dropped the precious hindquarters of meat to the ground. His shoulders ached and burned from carrying the burden throughout the day. Now there was no need to carry it further. Ketan understood he meant it as a present for the villagers.

"What happened?" Ketan asked.

"Statists—hunter Statists—"

The word was like a flame that touched off a holocaust of recollections. Once—once, on that night at the *Karildex* when Matra had come to him and demanded use of the master keyboard, she had said—

what was it?—"For more than a hundred *tara* an organization has existed in our midst—the final objective—is the destruction of Kronweld. They fear us and will destroy us. They are the Statists."

Ketan remembered her words. He could see her face as she had stood trembling with a fear that seemed to shake her withered form like a dry branch in a cold, Dark Land wind.

But she had not told him who the Statists were, only that strange fantasy of a world surrounding Kronweld. She had said that Elta knew what to do, and he had not been able to find what Elta knew.

"Who are the Statists?" Ketan turned to William Douglas. His voice was tense in restrained excitement.

"The Statists?" William Douglas let his hand drift out in a gesture over the ruins. "They are those who do this. Tyrants, madmen, despoilers—how many words are there in your language to describe such? They are all of that and more. They have ruined a world."

Ketan didn't comprehend. There were no words in his language to describe those who would create such a ruin.

"Men?" he asked.

William Douglas' face grimaced. "They have the general form of men."

Ketan understood neither the tone nor the words. Before he could speak, William Douglas bent down and picked up one of the fallen hindquarters. "We'll have to go on," he said, dully. "There is another village we can reach by midnight—if it still exists."

The Statists—whatever the word meant, it was a connection between this world and Kronweld. It didn't matter that it was a word spoken in hatred and bitterness. It was a connection, and hope surged within Ketan. He would find what it meant.

William Douglas seemed able to pick his way unerringly in the dark. Ketan stumbled and groped almost blindly behind him. Once he stumbled and fell over an object that lay across the path. As he rose, he turned to see what it was, but William Douglas urged him on.

"Dead," he said.

Then Ketan knew what that and the other shapeless objects strewn through the trees were. The villagers, the two hundred who had lived here, were dead with their village.

Ketan did not know how long it was that he stumbled and groped before William Douglas put out a cautioning hand and brought him to a standstill. For a moment he couldn't see why they had stopped. He followed the direction of William Douglas' pointing finger with his gaze, and glimpsed dimly in the light of the feeble globe a movement on the trail ahead of them.

There was a continuous, undulating line of motion there. His vision resolved it into individuals, and he saw more than a dozen figures.

William Douglas advanced cautiously until they were only a score of steps behind the figures. Then

he said, "It's all right. They are from the Village Brent."

The figures turned with a frightened start as William Douglas hailed them. Then, recognizing him, they burst upon him and their voices were mournful in the night. In a vocal exchange so rapid that Ketan could catch only a fraction of it, they told the story of the destruction of Village Brent.

There were eight men and six women. Two of the latter carried little ones. Some of them were injured. A man's arm dangled like a horrible pendulum when he moved. One of the woman had hair so blood covered that it was molded upon her head and about her face. Surely they would be taken to the Place of Dying, Ketan thought. And then it occurred to him. These people had no Place of Dying. They fell and were buried where they lay, even as back at the cave.

But what, then, would happen to these mangled ones?

Assuming leadership, William Douglas took control and they continued their way. Left to himself, Ketan tried to imagine the Statists, who or what they were.

He failed to conceive men who could wreak such destruction and death as he had seen. In all the history of Kronweld no such event had been witnessed—but this was not the world of Kronweld.

Their common point was the enemy. The Statists. Was it possible that the Statists planned such destruction for Kronweld?

By midnight they came to the next village. As they approached, Ketan felt a rising apprehension in the refugees. They came at last to a turn in the trail that revealed the village site. An audible gasp and thankful cries came from the band. The village was intact and undamaged.

Few impressions bore any logic to Ketan as they came into the narrow streets and roused the villagers. He saw that William Douglas was recognized as an authority by all. Why or what position he held, Ketan did not find out. He was shuffled among the refugees and found himself led into a dingy shelter, lighted by an oil-burning lamp. There was a dirty bed of hewn slabs against the far wall. The coverings were animal skins covered with a grayish white fluff.

An overfat, middle-aged woman directed him into the room. He got just a glimpse of her bedraggled hair and tattered dress of skins. The latter looked like the hide of the animal they had eaten that day. At least there were no inhibitions among these people regarding the use of animals, Ketan reflected.

Later, she brought in a bowl of bitter liquid and a slab of hard cooked meat. He ate a fraction of it. Too weary for any further investigation or questioning of his surroundings, he slept.

As soon as he was awake the next morning, William Douglas came to see him. There was still a deference in the man's manner because of Ketan's disguise and Ketan won-

dered how best to get rid of it. Its deterioration was giving him a rather horrible appearance.

But he had no time to consider that, now. With William Douglas was another man, lean and almost black with pigment Ketan recognized as due to the rays of the globe. He wondered that they did not use day cloaks of some kind.

"This is John Edwards," William Douglas said.

"John Edwards," Ketan repeated.

The man parted his lips in a welcoming grin of white teeth.

"Tell him where you want to go," said William Douglas. "The sand and the rock."

Ketan's whole being quivered. Was this a man who could lead him to the pinnacle? Eagerly, he described the scene as he had to William Douglas.

The man looked puzzled and spoke to William Douglas in words that Ketan could not understand. The newcomer looked thoughtful, then he pointed out the door and far beyond the forest and mentioned a name. William Douglas nodded.

He turned to Ketan. "John Edwards knows this country better than anyone. He thinks he can lead you to the place you describe. Will you go with him?"

"Yes! Now?"

William Douglas shook his head. "Not yet; we must rest. It is a long journey and there is much you must tell me. We must learn to speak better. In a day or two we will go."

"You will come with me?"

"Yes."

Why he was so anxious for William Douglas to accompany him, Ketan could not have said, except that that first terrible moment of awakening in the forest had been dispelled by the man and in his mind, Ketan still clung to him like an anchor of sanity.

They sat down and motioned Ketan to do likewise.

"We want to talk to you," William Douglas said. He formed his words slowly, groping for expression that he knew would be intelligible. "Your coming is of great importance to us. We have not told the villagers that you are not one of us. We want to know if you have come to help us or if you have escaped too, from some land that is unknown to us. Do you know where you are?"

Ketan shook his head. "There should be two great globes, where there is only one. There should be the Great Edge, visible from any part of the land."

"The Great Edge? What is that?" asked John Edwards.

"Wait," said William Douglas. "You are in a forest called Kyab. We call the planet Earth. Does that mean anything to you?"

"No."

"Tell us about your world."

He would rather have heard about theirs, Ketan thought. But there was some urgency about their manner that invited his co-operation, that they might understand each other as quickly as possible. He sensed a fleeting impression that they had somehow half expected him, that they could explain all the

mystery of his exodus from Kronweld.

"Kronweld is flat, shaped like a half circle." Ketan drew a diagram in the dirt floor. "On one side is the Great Edge. No man knows what that is, except that it is a curtain of blackness that reaches beyond our limits to understand. Encompassing Kronweld on the circular portion is Fire Land. It is a land of molten pools that explode into the air, of burning ground and hot gases that rise from it. Only a few, including myself have ever gone through it into the region beyond, which we call Dark Land because the globes are never visible there due to the smoke and ash that blows from Fire Land. There is animal and plant life there unknown in Kronweld."

"How many of there are you?"

Ketan didn't comprehend at first. When he did, he stopped. How could he tell them? They had no units in common.

William Douglas saw his hesitation. He drew a square on the ground with ten divisions on a side. "Ten," he said, indicating the side. He pointed then to the square. "One hundred."

Ketan drew a square and indicated a side. "One hundred," he said.

"Ten thousand of them," said William Douglas slowly. "Surely there must be more." He looked at Ketan questioningly. "Do any ever come into Kronweld through the Great Edge?"

"That's the way all are born into Kronweld! Tell me: What do you know of it?" Ketan demanded. This world must not be as alien as he believed. These men knew of the Great Edge and the mystery that was beyond the Temple of Birth.

But William Douglas was shaking his head. "We know nothing of it for certain. It is only something that many of us have guessed at for a long time without any basis for our beliefs.

"In our world there is a law that requires all the new born to be examined for criminal or destructive traits. When these are found in a baby it is destroyed. That is all. There are some of us who do not believe that those—at least not all of them—who are supposed to be destroyed are actually killed. We have believed that they are sent—*somewhere.*"

"Where?"

William Douglas shook his head. "Beyond . . . beyond the Great Edge perhaps. To Kronweld?"

"But we of Kronweld are not criminals, destroyers! Those are the Statists, so you said," protested Ketan.

"It's long and involved," said William Douglas. "We ourselves do not know even where to look for clues. All we know is that life is something hardly better than death among us. Let me tell you:

"I didn't say what we are called, did I? We are called the Illegitimates. It means that we are those who have no right to live. We are those who have not been examined by the Selector. Our parents and theirs before them, refused to risk

submitting their children and chance seeing their lives snuffed out without mercy.

"The law requires that all new born be brought within one month to the Selector. I have seen only the great central Selector in Danfer. Others controlled by it are scattered throughout the land. It is the most terrible sight in the world. Hundreds of parents come each day to the building and place their babies in the care of the machine. It is a great, monstrous creation that fills one end of a huge hall. The babies are carried automatically through the depths of it where every feature and psychological attribute of their minds is analyzed and charted.

"Most of them return from the machine to the arms of their waiting parents. Some of them never emerge from the machine."

Those were the faces he had seen, Ketan thought. There was the vast and crying multitude that had called out to him. He had seen the great hall of the Selector.

"I saw the parents of such a baby one day," said William Douglas. "They took their baby into the hall with hundreds of others. I saw them go into the receiving room and wait. They were there all day, and they sat watching others who had come in after them receive their babies and go away. Neither the man or the woman said a word. At night they got up and went out —without their baby. They hadn't made a sound or spoken a word. But I looked into their eyes as they passed me. The sight of those eyes will be with me until the end of my life."

There was a silence which Ketan broke at last. He had to know about that scene back in the cave. He spoke softly to William Douglas.

"Your child—"

After a long moment William Douglas looked up. "Mary and I were Illegitimates. Our parents had been. We went back on a special mission to try to find out something about the Statists. We bore false brands, to simulate those marked on every individual examined by the Selectors. I was a surgeon there and was appointed once to see the Director himself, the head of the Statists, but the appointment was suddenly canceled, and I found out they were suspicious of us. They would have killed us both if they had seized us, but Mary was to have a child soon, we had to go. We made it to the Village Dornam and the night we arrived it was destroyed by a casual Statist hunter who discovered it. Mary and I had to flee."

Though Ketan had never known a relationship between himself and another individual such as existed between all these here, he could sense the feeling that was within William Douglas. Because of Elta he could understand the man's emotion towards his Mary. And dimly, through the thick layer of conditioning, he could sense the reaction towards that new life that should have existed and never had.

It was a world of terrible, in-

comprehensible conflicts, this land into which he had come. It was like men fighting in the night, none knowing who or what his opponent was.

And yet Kronweld itself had been just such as this. For untold *tara* perhaps, conflict had raged beneath the surface of Kronweld and he had known nothing until those brief days when he had plunged into the maelstrom.

Somehow, he felt sure that the conflicts in the two worlds were related, yet he did not see how. Missing strands of information which neither he nor the Illegitimates seemed to possess must span the gap.

"Why have you believed that those who disappear are not dead?" Ketan asked. "Apart from what I have told you, I mean."

"They have always made us believe that the Selector culled out the criminals, the destroyers, the tyrants. But we have criminals with us. And the Statists themselves surpass any tyranny that existed in past ages, yet they came into existence after the Selector was in use.

"But more than that. There have been times—few, to be sure, but enough that their evidence cannot be ignored—when those in the Selector hall have seen, as if through a gateway, other men dressed in strange garb. You see, those rejected by the Selector are brought out to a sort of altar which is visible to all except the parents whose children are within the machine. These are prevented from seeing the rejection of their own, because it is such a terrible sight that they would create a disturbance.

"The rejects on the altarlike support are surrounded by electrodes that inclose them completely in a ball of flame and when the flame dies there is no trace of the infant.

"It is on this altar, between these electrodes, when the fire is dying, that men have been seen. And other times, when no infant is on the altar there comes a faint glow sometimes and half ghostly figures are seen between the electrodes. It is these things that have made us believe that—well, *something* besides death occurs there."

"I have seen such a light," said Ketan. "I saw it in the Chamber of Birth in the Temple in Kronweld. It lies next to the Great Edge and when the gateway opens, there is a great flame that seems to burn a hole in the Edge itself. When it dies, another infant has been born in Kronweld.

"It must be the same thing. It is too similar to be merely a coincidental phenomenon."

"Perhaps. Many of us have hoped for years for some such explanation. The reason I first spoke of the Statists to you is that those men have been seen in the hall of the Selector. I thought perhaps you knew of us, we're fighting the Statists, too. But how is it that you knew the word, yet nothing about them?"

Ketan explained as briefly as possible what he knew of the inexplic-

able events preceding his plunge through the Great Edge. The two Illegitimates listened with mixed emotions of wonder and surprise, but as he finished, William Douglas nodded as though his own convictions were confirmed.

"The Statists are there. Why, or what they intend to do, I don't know, but it seems pretty obvious that Kronweld possesses a science that the Statists do not have. How could that be? Why should the Statists want the destruction of Kronweld if, as seems possible, they have deliberately built it up. Can you think of any explanations, Ketan?"

"No. My only concern is to get back. I've got to go back and see what has happened to Elta."

"If she is a Statist, perhaps she is already here, among her own people."

"She couldn't be! I've known her—"

"How long?"

"All my life."

"Is she older than you? Did she come through the Edge first?"

"A couple of *tara*. Perhaps three of your years."

"When did you actually meet her. Was it long enough after your 'birth' so that she might not have come through in the same manner as you?"

"She is not one of the Statists!" said Ketan.

The Illegitimates made no answer. Ketan needed none. He was thinking of Matra and her accusations at the *Karilder*. But even she had become reconciled to Elta and trusted her in the thing that she wanted to do. But what was Elta's purpose. Who was Matra?

Ketan's mind swirled with the unanswered questions and their thousand implications. He was roused by the voice of William Douglas, he was aware the man must have been speaking for some time.

"The thing we would like to know is what this mysterious pinnacle means. How did you know there was such a thing here? Why do you desire so strongly to find it?"

Ketan wondered how he could explain something to them that he could not explain to himself. Carefully, picking each word from the meager vocabulary he shared with them, he told him of his dreams and visions, and the voice that he had heard. "It's as if I were being drawn by some force located in the pinnacle," he said. "I can imagine how that must sound to you, but it's true. There's something there, something for me alone. There is a power there, a power created by man that is reaching out for me. How it knows who or what or where I am, I don't know, but it's drawing me on. I almost believe that if I should close my eyes and begin walking I would be drawn to it, so strongly has that sense of attraction been with me."

Both the Illegitimates were silent. William Douglas was looking into the distance where John Edwards said he thought the pinnacle might be.

At last he turned. "I can't find a place for it in either your story

or ours. It seems to have no meaning. I would be prepared not to be dismayed if it turns out to be a figment of imagination. Some early conditionings, perhaps, brings it back, even though you do not remember seeing such a place when you are not under a strain."

"There is such a place," said John Edwards, with certainty. "If it's as you describe, I can take you there. I've never been there, but I've seen it from the Mesas. It's called 'Valley of the Winds' because of its perpetual sandstorms. There is nothing but rock and desert. I don't see what you expect to find there."

"It's *inside,*" said Ketan.

"Inside?" William Douglas' face set in sudden decision. "We'll go tomorrow. Whatever is there, and however you know of it, it may turn out to be a key to the overthrow of the Statists."

"There is one other thing—" Ketan spoke in sudden confusion.

"What?"

"I am not—exactly what I may seem to you. In order to enter the Temple of Birth it was necessary for me to adopt a disguise. I should like to remove that if possible."

"Of course," said William Douglas. "Some more durable clothing—I'll see that you are supplied."

"And a considerable amount of boiling water."

"Naturally." Apparently he assumed it was for a bath, Ketan thought.

Ketan spent the entire remainder of the day alone in the room. He

You feel right on the button, man—
Get quick shaves that look spick-and-span
When low-priced Thin Gillette's your blade—
For comfort, too, it's sure top-grade!
Outlast Ordinary Blades
Two to One
Gillette
4 for 10
Produced By The Maker Of The Famous Gillette Blue Blade

stripped off the tattered filmy garments he had worn from the Temple and with a knife he had borrowed, he hacked slowly at the half softened plastic. He called for endless kettles of boiling water with which he tried to melt the resistance plastic. The heat went through to his flesh and he was boiled and mangled by the time he was finished.

It was a poor job, but the rest of the stuff would have to wear off. He donned the rough, skin garments and then realized that they had brought him a woman's dress. He laughed to himself as he thought of the probable reaction of William Douglas. He sent word for him to come.

It was near dark and the village was preparing to eat, when William Douglas came in.

"Come and get something to eat," said William Douglas. "I've just about finished our preparations for tomorrow. I—" he stopped, staring at Ketan.

Ketan lowered his voice that he had maintained at falsetto pitch until now. "I'd like some man's wear. This doesn't seem quite appropriate."

"Well, I'll be—" William Douglas exclaimed. "So *that* was the disguise."

XVII.

With an unreasonable reluctance Ketan allowed himself to be led out into the midst of the villagers. He was both anxious to discover what the community life of the Illegitimates was like, and at the same time half fearful of contacting them because of a fearfully mounting conviction of his own abnormal conditioning.

Made of clay bricks, the two- to four-room dwellings were grouped irregularly in the clearing of the valley and separated by crooked, winding pathways that alternately narrowed and widened.

It was difficult for Ketan to comprehend the way of life that these poor conditions represented. That it was not all due to the harried conditions of life created by the frequent attacks of the Statists was obvious.

The people themselves reflected ignorance and lack of Seeking in their faces. Ketan walked among them and looked in vain for the face of a Seeker, one who could plan and build for better conditions than these. But there were none.

The faces were, rather, such faces as Ketan had rarely, if ever seen in Kronweld. They were faces that spoke something to him that he did not understand, the faces of men and women who defied the Statists and risked their lives every day in their defiance. They were the faces of men and women who would rather live in the crudity and ignorance of these forest villages than submit their children or themselves to the tyranny of the Selector.

Somehow, Ketan liked what he saw there, in spite of the repulsive surroundings. If Kronweld had a few men with faces like theirs, he thought, there would be no forbidden Mysteries there. If some day these people and the people of Kronweld could merge, their at-

tainments would be limitless.

He walked beside William Douglas through the drifting villagers who wandered from house to house, chatting in the streets, nodding in easy deference to William Douglas. The two were walking towards the other end of the village where they were to eat at the place William Douglas had been staying.

They passed a building with a pile of what looked like metal wreckage to Ketan piled beside it. William Douglas saw his glance.

"Statists'," he said. "They are machines the Statists build to carry themselves through the air. Planes or airships they call them here, but, of course, you have developed such in Kronweld."

Ketan shook his head. "There was no need, so we never produced any such machine. The possibilities of constructing one interested me for a long time, but I never built one. How did you get them?"

"They are poor machines, not like the ones men built a thousand years ago. Sometimes they fail and are forced to land. We capture the Statists and kill them, and bring their machines, which are almost always wrecked, here. It was a hunter in just such a machine that destroyed the two villages, Dornam and Brent."

Another time, and Ketan would have liked to have examined the machines, but the possible principles were obvious and he felt a greater urgency in his other problems now.

They resumed their way. Nearly there, they noticed a knot of villagers gathered at the end of the street. They were gathered about someone in their midst and one was pointing down the street to themselves.

Suddenly William Douglas uttered a cry. "Carmen!"

He started to run, leaving Ketan behind. Then a woman broke out from the gathered knot and raced towards him. They met halfway in a tight, long-lasting embrace. The woman was crying happily. "Bill! I thought I'd never see you again. I've been to every village—"

When Ketan came up they failed to notice him for a long moment. He stood watching, unable to comprehend the relationship of these two. What kind of people were they, who could watch as William Douglas had watched his companion die only two days before and now—

They turned towards him then, and William Douglas said, "This is Ketan. There's a long story about him that you'll have to hear. And this is my sister, Carmen."

Ketan took the hand she held out towards him. Sister? He wondered. It was a word he had not heard. But it implied a relationship between them that he could not comprehend.

William Douglas saw the consternation on his face. He started to smile, then a deeper sense and a touch of pity removed it from his lips.

"My sister," he repeated. "It means that the same man and woman gave us life—we have the same mother and father."

Carmen said nothing, but looked strangely from Ketan to William Douglas.

"We have a brother, too," said William Douglas, "but we don't know where he is. We think the Statists have killed him."

Ketan stood looking from one to the other. He tried to catch something of the bond that was between them and failed. But he knew the surging loneliness that he had always known in Kronweld, the impenetrable wall that seemed to exist there between everyone but companions. And now he thought he saw why it existed.

"Sister," he said slowly. "Brother —Father, Mother—" He repeated the words he had heard like a child learning them for the first time. And the unfamiliar sentiments he faintly glimpsed attached to them were overwhelming. Kronweld, with all the fine beauty and excellence of its Seeking was more barren than the forest of villages of the Illegitimates.

There were horses, which Ketan had not seen before, saddled and waiting when he arose the following morning. The sight of William Douglas astride one seemed ludicrous, but he had to admit it was a utilization of animals that had not occurred to him in Kronweld. He doubted, however, that it would be very practicable to ride the Bors.

As he approached the animal he was to ride he doubted also the practicability of his riding a horse. Dubiously, he mounted with the aid of John Edwards.

Besides the three animals they rode, there were three that carried packs of supplies only.

The first globe, or sun, as Ketan was trying to accustom himself to calling it, was not yet above the horizon, but the sky was palely light. There was a sharpness and brilliance in the air that he had never known in Kronweld. It filled him with a strange, sheer exuberance and pleasure in mere existence. Tall, white clouds roamed in the sky.

John Edwards looked up dubiously. "I hope we don't get caught in a good thunderstorm before the day is over."

"We can't wait on that," said William Douglas impatiently. "Finding the pinnacle is of more importance than a thunderstorm."

Behind the casualness of the words Ketan sensed an urgency almost like that which drove himself. He wondered if the forces that reached out from the pinnacle had claimed William Douglas also.

For the first half of the day he had little time to think of anything but learning to ride properly. His two companions rode beside him, constantly keeping watch and trying to show him how to let his body follow the rocking motion of the animal.

Until almost night, they followed a winding trail through the forest, under the great trees that towered like some high vaulted roof above them.

Ketan's instincts for Seeking were overwhelmed by his surroundings. There were Mysteries enough

here for all the Seekers in a thousand Kronwelds. Compared with the fifteen different kinds of plants which he had found in Dark Land, he glimpsed a hundred different kinds as he rode along here. Impulse invited him to dismount and examine and collect them, but there was no time for that. Later, perhaps there would come a day.

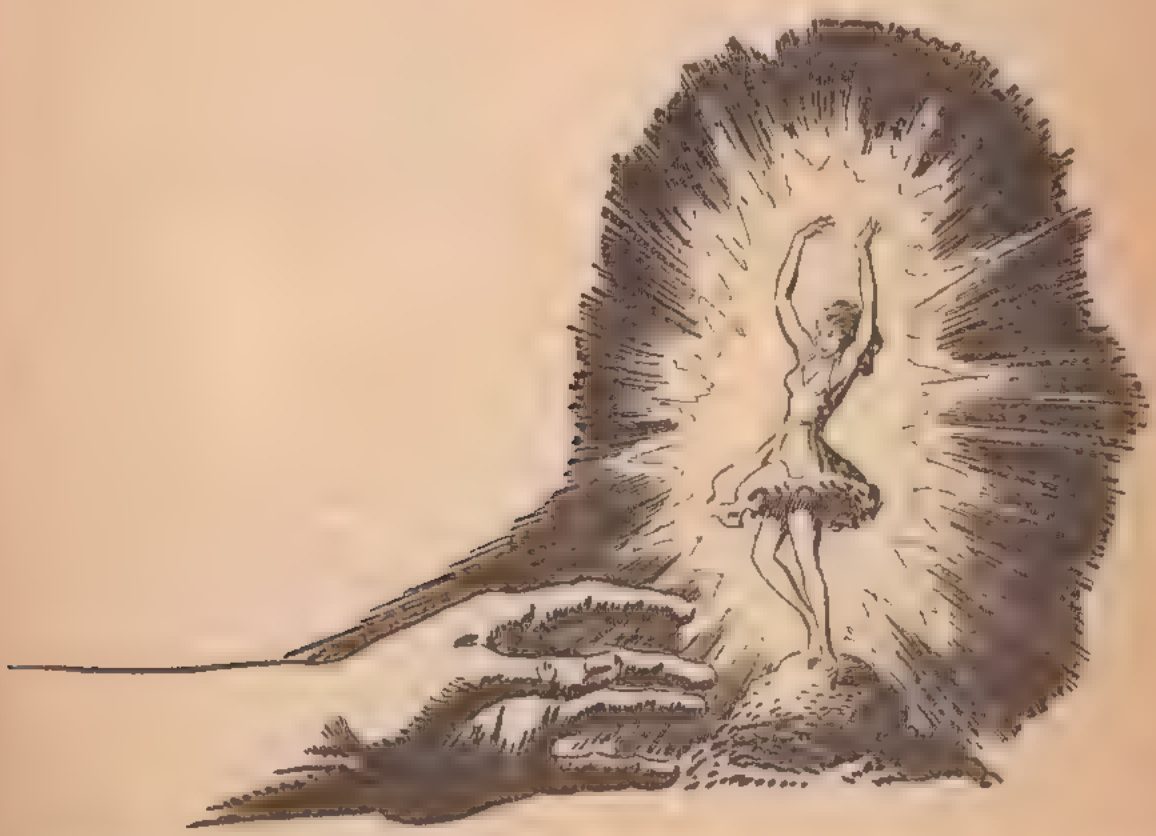
He saw animals, too. There were tiny, scurrying things that climbed in the trees and raced along the ground. And once or twice he saw large, horned animals like the one William Douglas had killed.

When the sun was nearly down, they began to descend sharply and the trees about them were stubbier and thinned out. Then abruptly they came out on an exposed hillside where the mountains fell away to the endless expanse of desert below.

The sudden exquisite sight made Ketan catch his breath. In the distance, other flat-topped hills were bathed in purple sheen that merged with their natural red and bronze. As the sun lowered and the shadows lengthened, it seemed as if the endless desert were some vast sea of moving color and lights. It flowed and surged against his senses until he had to turn his head away.

But before he did, he had seen it.

He had seen beyond that red and yellow desert and the mountains with their purple rims. He had



seen an endless expanse and a needle peak thrusting up to break its bareness.

He pointed through a gap far across the desert. "It's over there," he said.

William Douglas started to speak and then closed his mouth silently. John Edwards only stared at Ketan and nodded.

They built a camp in a level clearing on the edge of the forest, and when they had eaten and the fire had nearly died they lay back and Ketan saw the stars.

That first night by the cave his senses had been too dulled to notice that they were more or brighter than in the cloud laden skies of Kronweld. But now he saw them. He lay watching as a child might have watched, not amazed, not frightened, but accepting their wonder and their nearness as a part of a new world.

He turned to William Douglas who lay nearby with eyes looking far beyond the stars. "What are they? Does anyone know among your people?" Ketan asked.

"What are what?"

"Up there—those points of light."

"The *stars?*"

"Is that what you call them? I wonder if it would be possible to go high enough to see what they are."

William Douglas raised up on one arm and looked down at Ketan. "Do you mean that there are no stars visible in Kronweld? That you have no science of astronomy?"

"Only at rare, short intervals are such lights visible in Kronweld. We have wondered about them, but we know nothing of them. They have always been declared a Sacred Mystery."

"Stars." He repeated the word and it flowed upon his lips and tongue like some breath of exotic winds. Into it he put all the awe and wonder, dependence and fear that man had known since the first cave dwellers prayed to the gods of the rolling vastness of the sky and the first shepherds looked up to them at night with nameless pleading.

"Stars," he said. "They look as the name sounds. Do you know what they are?"

William Douglas partook of the mood that encompassed Ketan. "They are dreams," he said. "They are dreams and other lives and other homes and worlds where men are as they would be."

His eyes came back to earth and he looked across the dying coals to the eyes of the stranger from out of another world. His glance fell upon the narrow features, the thin nostrils and sharp, never resting eyes, the high smooth forehead. "You've got to go back, Ketan," he said. "This world will kill you."

"There are other worlds like this one?" Ketan persisted.

"Most of them are globes like our own sun. Some of them are other planets like this one. Many of those other suns have planets. There are probably more worlds like this one than you can number right in the range of your vision."

"Kronweld . . . Kronweld could be such a world, could be on one of

those worlds, couldn't it?" Ketan breathed.

"I wonder—" said William Douglas.

When he at last slept, Ketan was still leaning on one arm, looking up at the stars.

Ketan did not think he had even been asleep when William Douglas began stirring again. The Illegitimate built up the fire and began breakfast.

"We've got to get an early start and put as much of that desert behind us as possible before the sun comes up," he said. "It'll be an oven out there by noon."

The stars were still bright when they broke camp and wound their slow way down the mountainside. The sky was just beginning to glow in the east by the time they reached the desert floor.

A fringe of low clouds in the sky lighted up the world in a fire glow as they left the mountains behind them, and then slowly the desert turned to a sea of yellow. It gave a sense of unreality as if they were moving upon a liquid surface lighted from below. They seemed to have stopped moving entirely, for the mountains ahead came no nearer, and those behind seemed not to retreat.

His companions were obviously uncomfortable in the rising warmth of the day, but it did not trouble Ketan. It was like many of Kronweld's days, and far less to endure than the inferno of Fire Land through which he had passed.

They stopped at a watering place at midday. The sun was overhead and so marked the passage of time, but to Ketan it seemed an illusion, for all time and all other experiences seemed lost upon this sea of yellow. We'll never reach the other side, he thought.

But by nightfall, they were nearing the gap in the mountains beyond and time resumed its flow. He knew that beyond that gap lay the greater desert where eternal winds blew and a single needle of rock pierced the sky.

"We'll camp outside," said John Edwards. "It's hell in there. I don't know whether we can make it in a day or not."

So near his goal, Ketan hardly slept that night. All the hopes and fears that he had known returned in an avalanche of emotion and garbled reasoning. Would he at last find out what the mysterious visions meant? Would the pinnacle contain the explanation of the artificialities and unrealities of Kronweld?

Most of all, would it tell him how to go back—back to Elta?

He must have slept towards dawn again, for he was next aware of William Douglas preparing the fire. It was later now than the previous morning, and already the walls of the canyon were coloring like ripening fruit.

They resumed their way quickly and passed between the narrow gap with its towering walls. It was a short passage and after a single turn they glimpsed the distant end. It seemed as if a curtain of bronze were hung across it.

"That's it," said John Edwards, "and it's hell."

Then Ketan knew what it was. He was seeing it now, not in vision, but in reality. Beyond the mouth of the canyon was the desert, the desert of heaving, shifting, wind-borne sands. Hell, John Edwards called it. Ketan knew he had traversed it nearly a score of times.

The wind began to dip fingers into the canyon, sharp, golden fingers of sand that divided into yet a thousand other fingers and reached into their lungs and pierced their eyes and stung their skins. Half blinded by the lashing sand, they were not yet at the canyon's end.

John Edwards coughed and swung his horse around. "We'll have to wait," he gasped. "We'll never make it with that tornado blowing out there."

The other two pulled up, covering their faces against the sand blast.

"It's nearly always this way," said Ketan.

"What about it?" asked William Douglas. "Is there much chance of this wind dying down?"

"It never dies down. But it might let up a little," said John Edwards. "We could never find the pinnacle in that anyway. We couldn't see it twenty yards away."

"We could find it," said Ketan quietly. "I don't need to see it."

As unerring as if a voice were guiding him, he knew that he could find it. He had done it before. He knew how it would be the instant they stepped out of the canyon's mouth.

"Are you sure of that?" William Douglas asked.

Ketan nodded.

He hesitated, then decided. "We may as well make a try for it. We haven't provisions enough for a long wait. I'm willing to believe that Ketan can take us there."

John Edwards made no comment. He didn't know or care much about Ketan and what mystic abilities he might have. He was something strange, out of the Illegitimates' world. But John Edwards' devotion to William Douglas was strong. Whatever the leader of the Illegitimates decided upon was right with John Edwards. It was fortunate that William Douglas was there to bridge the gap between them, Ketan thought.

They wrapped their faces in rags moistened from their canteens and reined the horses about. The animals reluctantly faced into the wind that thrust into the canyon's mouth. Automatically Ketan now found himself in the lead. The others had given way to the instinct within him that they hardly dared trust.

The canyon walls became mere shadows only faintly darker than the sand mist about them. When they emerged from the mouth of the canyon they were never quite certain. They knew only that there came a sudden increase in intensity of the wind and the biting of the sand needles pierced deeper into their flesh.

The horses grew panicky in the blind, howling world of air and

sand. It was only with difficulty that the riders maintained control. Ketan reined hard to keep his beast headed into the wind, but he had to let it go to keep its head down.

Thus, in their own silence, but amidst the howling of wind-driven sheets of sand, they rode on. It was a world of desolate, torturing night. Again Ketan felt that sense of lost time and motion, but a thousand times more intensified than out on the desert of the day before. Now he was in a world where motion was impossible, where time would never exist again. They were frozen in this timeless block of sand and air.

He turned to see if his companions were there. He could only see William Douglas a scant half length behind, but John Edwards was invisible. He hoped the other Illegitimate was still following.

He turned and tried to stare ahead, shielding his eyes from the blast. There was nothing. For a moment he let his thoughts absorb in introspection. Could he be sure they were headed right?

There was no doubt of it in his mind. As if an invisible guiding beam were trained upon his brain, he knew surely in what direction the pinnacle lay through the desert.

And as they went on, it seemed as if the gathering wisps of prescience of all the past *tara* combined in a single mighty conviction of guiding forces that had led him through every incident of his living to this present moment. It was right. He was where these forces had led him, and now, presently, they would reveal themselves and all the reality of the interlocked worlds that could be bridged by a pathway of light across the ages and through infinities.

There was no way of knowing where the sun was in the sky. It was only by the thickening of the gloom that they judged that night was coming. Yet it seemed incredible that a full day had passed even though the sand had seemed to beat upon them for an eternity.

And then it broke.

The curtain of swirling sand dropped as if melted in the sudden downpour of rain that fell upon them. The wind died with startling suddenness and water replaced the sand, falling in blinding sheets. But it was good.

They drew up together and halted and turned their faces up to it. They grinned at each other as the rain made little cascades in the furrows of their faces and carried with it the shattered cakes of sand that lay upon them.

"You were right about the thunderstorm," William Douglas said to John Edwards, "and am I glad!"

"Another hour of that and I'd have been gone. We lost two of the pack horses, did you know?"

William Douglas looked back. His face sobered. "That means a shorter stay. Do you know where we are, Ketan?"

Ketan pointed. They saw it simultaneously. Through the misty curtain of water that fell about them, they saw in the distance the

single column that reached towards the sky.

The pinnacle.

A sudden unreasonable excitement took possession of Ketan for an instant. It was the realization that here before him was the object of a life-long quest. Here was the visioned rock whose image had been burned in his brain before ever his eyes beheld it.

"Come on," he said hoarsely.

The pinnacle was a single shaft of rock that seemed unbroken by the winds and frosts. It looked as eternal as the stars. The flat planes of its sides looked as if fashioned by the hands of the gods.

Even John Edwards was subdued by a sense of awe in the presence of the thing. "I'll bet no man has been this close to it for a thousand years," he murmured.

"Do you know what you expect to find, now?" asked William Douglas.

"Yes. Down near the base on the opposite side—"

He reined about. The feet of the horses padded upon the sand that was still powdery beneath the thin layer of mud. The thirst of the desert was hardly appeased by the thick rain.

It began to let up a little as they neared the pinnacle. Somehow the rock was larger than he had visioned it. William Douglas estimated it as two hundred feet in diameter and about six hundred feet high. Not another rise broke the flat expanse of sand as far as they could see.

The illusion of vast distance was partly due, they saw, to the slow rise of the desert sand that cut off the view of the mesas behind them.

Ketan led them to the opposite side and gazed upward for a long moment at the wet sides of the rock. Its thick girth was striped with red and white and bronze layers like the distant mesas.

John Edwards repeated his observation about the isolation of it. "If somebody wanted to hide anything, this would be a good place to put it."

But Ketan was not listening. He was surveying the surface of the rock in vain. He went to the other sides and scanned them. There was nothing there to mark the spot he searched for. He returned to his starting point and continued to stare up.

"It's not there—" he began. Then his eyes lighted. "It's down there," he exclaimed. "The sand has buried it."

"Buried what?" said William Douglas.

"The entrance," said Ketan.

It was obvious that the sand had drifted about the base of the pinnacle to a considerable depth, for it sloped down in a long slant that indicated an excavation of many feet if they had to go down to a point level with the general expanse of the desert.

But Ketan indicated that they would have to dig to a depth not much more than equal to their own height. The vision in his mind was of a marker far above his head when standing on the level.

The sudden torrent of rain was slowly dying, and they could see breaks in the dark, overcast sky. The wind was rising again, portending a resumption of the sandstorm which the rain had interrupted, but it would not be as bad with the thin layer of wet, caked sand on the surface.

Their packs contained an assortment of crude tools of the Illegitimates' own manufacture. They were fortunately on the animal which had not become lost in the storm. Ketan indicated the exact spot at which the digging should begin. There were no materials for shoring up the sides and as they dug they had to widen the mouth of the hole to account for the sand that constantly shifted down.

It was a wearying task, made miserable by the rising wind that swirled in the hole and limited the direction of shoveling so that only one man could work at a time. Night, too, was swiftly approaching and the lowering clouds were closing the gaps they had tentatively opened. It looked like a night of hurricane and rain.

At last John Edwards straightened from his frantic digging. He wiped his sand-caked face and looked at Ketan. "This is as far as you said it would be necessary to dig. But there's nothing yet. Are you sure this is right?"

"Yes. It's got to be there!" He leaped into the hole. "Let me try."

John Edwards relinquished the shovel and stepped out. He stood on the rim of the hole with William Douglas. "I think we ought to start back. There's nothing here. We can't keep these horses here without water, and it's suicide to try to camp here any length of time."

Ketan heard them. Their silhouettes were dimly visible on the rim of the hole above him, standing like scornful gods in judgment over him. He hoped they wouldn't go back, but he knew that if they did they would go without him.

It was too dark to see what he was doing, but he kept on throwing sand out blindly. The wind swept it back in upon him so that he was forced to dig almost with his eyes shut. He kept close to the rock wall of the pinnacle and his shovel struck the rock repeatedly so that the force of his labor was inefficiently expended.

Then suddenly he realized it wasn't just the wall that he was striking. It was a projection that jutted out from the wall.

He threw the shovel out and flung down upon his knees, clawing frantically with his fingers. His eyes couldn't see it, but his hands gave him the shape of the object and its size. And his fingers found the small hole above it.

"I've got it! Hand me that bar," he shouted up to the men.

William Douglas threw it down to him and leaned over to see what Ketan was doing. He thrust the bar into the hole and pried out the smoothly fitted pyramid of rock. It came easily, but nothing else happened. He looked up and down the surface in bewilderment. He had expected this to be the key that

would open some passageway to them. There was just nothing at all.

Then William Douglas was shouting excitedly. "Down there —that light—in the hole!"

A faint, golden light was pouring out of the small opening, increasing rapidly in intensity. Ketan lay on his side, curling his body into a knot in the bottom of the diggings to see into the hole in the rock.

He did not know what he expected to see. He was prepared for anything—anything but what he did see recessed there.

The light was coming from a tiny, glowing image, a golden image of a dancing girl poised on one foot. The figure was carved with an exquisite reality that made him expect it to burst into motion.

Before his senses fully recorded an impression of the image he knew he had seen it before. Seen it nearly every day of his life since his birth into Kronweld.

It was a delicate miniature of the golden image of the First Woman that stood in the grounds before the Temple of Birth.

"What is it?" William Douglas and John Edwards stood impatiently on the rim of the excavation.

Slowly, Ketan climbed out of the hole and motioned them down. "See for yourselves," he said.

In turn, they jumped down and took a look at the tiny figure in the recess, while on the rim, Ketan stood staring into space. He was seeing Kronweld, the Temple of Birth, the fluttering curtains of purple light in the night sky over that distant world.

And he was seeing the golden, dancing image of the First Woman.

How was it possible for a miniature of that image to be here on Earth?

William Douglas rose slowly from his crouching position. "That's the most beautiful sculptoring I've seen for a long time—and to think of finding it here in this desert. Any idea what it means, Ketan?"

He told them of the original in Kronweld.

William Douglas whistled softly. "That *is* something. How long does your history say that the image has been there? In Kronweld, I mean."

"We have a record of a thousand *tara* since the First Woman came there. The image is supposed to have been there almost all of that time."

"A thousand *tara*. I wonder how many of our years that is."

"As near as I can tell, it would be about twelve hundred of your years."

The Illegitimate turned back to the hole where he could still see the light from the image glowing faintly. "And that must have been there equally as long. I wonder how it got there. Who put it there —and most of all, why?"

John Edwards was not so impressed. "Is that all we came to find? Let's get going if it is."

"No," said William Douglas. "There must be something more. This has no meaning by itself. What do you think, Ketan?"

"I don't know what to think. There's something more here, I'm sure, but what it is, I have no idea."

"You spoke of an entrance—"

"There should be one. All I know is that the small projecting pyramid should be removed. I thought that would open the way. I'm going to look again."

He went down into the hole and crouched, staring at the tiny image. Then he reached in a hand to touch it. It was merely resting there in delicate balance on one tiny foot. He lifted it up and out of the recess, its self-contained glowing lighting the hole in the sand with its golden light.

And then the sand beneath him collapsed.

As suddenly as if a cloak had been thrown about him, Ketan vanished from the sight of the two Illegitimates.

"Ketan!" William Douglas shouted into the hole. There was no sound, but the slithering of hundreds of pounds of sand.

"Ketan!"

Then as from far away came Ketan's faint cry. "Come here, quick!"

William Douglas poised on the edge of the digging. John Edwards touched a hand to his arm. "Do you think it's safe?"

"I'll go first. If everything's all right, I'll call to you. If you don't hear me, take it easy. Don't jump in after until you know what it's all about."

"I don't like this—"

But William Douglas was gone. He leaped into the hole and slid down the sandy wall. But he didn't stop where the bottom of the digging ended. He plunged on through into a tunnel of blackness that was fouled with the dust of sliding sand.

But it was short. He ended abruptly upon a stone floor.

Ketan was standing as if turned to stone. He did not even notice William Douglas' arrival, but continued in motionless stance a little distance away.

And then William Douglas rose and stood still.

XVIII.

They were standing in a sort of alcove. Dark, rough-hewn rocks marked the walls and ceiling about them, though the floor on which they stood was smooth.

But it was not this that they stared upon. It was the scene beyond. They were looking into a garden where strange pink and yellow and blue flowers nodded in a faint breeze that bore their fragrance to the men. There was a pool in the center with a fine spray rising into the air and a pair of birds were noisily bathing in it. Beyond, tall trees waved in the wind, against a sky where floating clouds drifted softly and melted even as the men watched.

They had no mind or voice for words. William Douglas was dimly conscious of John Edwards' frantic calling from above, but he could find no voice to breathe the wonder of the mirage before them.

He knew that it was a mirage, a product of some mental aberration that had seized them, but he couldn't fight it off. And then in a moment he ceased all desire to.

There was a movement among the tall flowers beyond the pool and a figure came into view. It was a girl walking slowly towards them.

Her head was high and there was a smile for them on her lips. They could see the wind touch her raven black hair and stir the folds of her dress whose pink matched the most delicate of the flowers.

And then she spoke, but Ketan did not grasp her words. His mind was in a tumult that made speech impossible. Perhaps he had not even heard. He only continued to stare in disbelief. And then William Douglas saw it, too.

The girl was the living replica of the miniature that Ketan still held tightly in his hand. She was the First Woman.

"Welcome to the repository," she said. "We've been expecting you. Please follow me. My father is waiting for you."

It was the sound of her voice and her words that struck another impact to the men's consciousness, for the words she spoke were in Ketan's language rather than William Douglas'. Yet it was a strangely unfamiliar form. Her pronunciation was not as it should have been. And the word forms were partially obsolete.

Ketan gave up his wonder. His mind went back to the control of his vocal cords and he answered her.

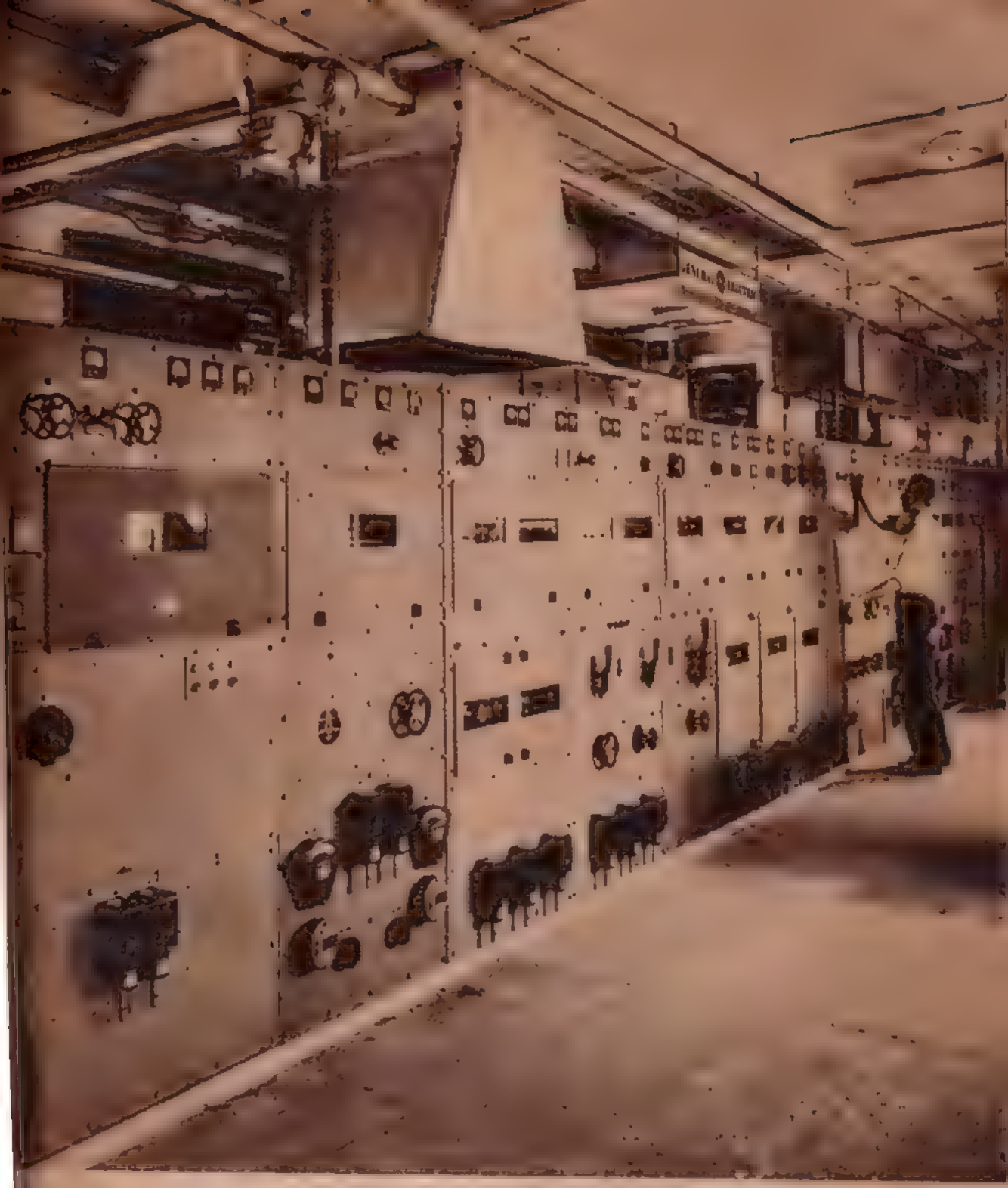
"I am Ketan. This is William Douglas," he said. "And this—" They realized for the first time that John Edwards was not with them. William Douglas returned to the opening and called up for their companion to come down.

Muttering under his breath, John Edwards complied cautiously. "I thought you'd fallen into a booby trap and killed yourselves. I was just about to shovel in the hole and go back." Then he, too, stopped and stared in wonder.

"What in—?"

The girl seemed puzzled. "How

(*Continued on page 148*)



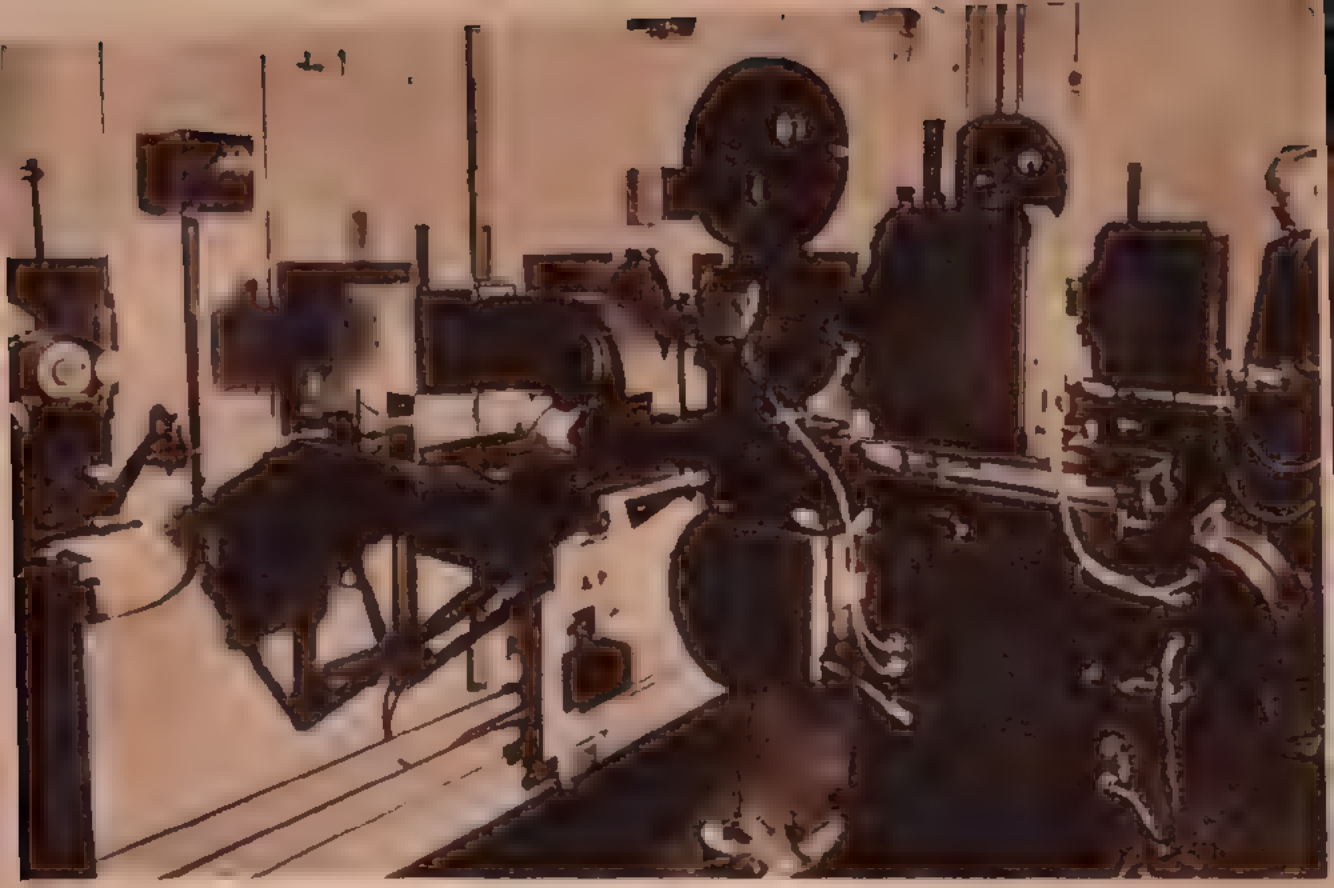
Problem in Eight Dimensions

Television has been disappointingly slow in coming. We're rather accustomed to having an obvious, widespread desire filled fairly promptly by the laboratories; that so much-wanted a device as a television receiver should be so delayed—when we have, for many years now, seen fairly efficient laboratory models—seemed downright irritating.

Part of the answer comes down to a question of compromise with quality. In 1925, home television was nearer than it was ten years later. In 1925 home movies had not become so generally familiar, and almost any moving picture scene in the home would have been pleasing. By 1935 excellent home movies, complete with color, were standard in every home that would be expected to buy the earlier—and more expensive—television sets. Quality of that level had to be attained, rather than the far lower permissible standard of ten years earlier.

But the basic trouble lies in the enormous complexity of the problem. It is, quite truly, a problem in eight dimensions—eight different parameters which must be under perfect control—in the case of ultimate perfection. That should be our goal, of course, and the permissible compromises made from that point. The ultimate television would be three-dimensional, in full natural color, and sound. Eight dimensions. Accepting two-dimensional television reduces that to seven dimensions, and by sacrificing color, we need handle only six parameters. How eight dimensions?

The General Electric television studio being set up for a play. Special high-intensity lights that give a minimum of heat have been developed. Mobile television pick-up cameras on self-propelled trolleys are used.



Television broadcasting of movie film introduces certain problems, since the frames-per-second of the movie projector must match the television rate.

The three spatial dimensions, of course, and, since we are forced to transmit the signals in sequence, re-creating the original by scanning, time. The scanning spot must be at the right point in the three spatial dimensions at the right time. It must, in addition have the right intensity for that point and time, and the right color. (Incidentally, if three-color reproducing systems are used, color becomes three, not merely one dimension, making a ten-dimensional rather than an eight-dimensional problem. To consider color as one dimension is, actually, a simplification of the facts.) The requirement of accompanying sound adds two more parameters; sound intensity and timing. (In electrical reproduction of sound, instantaneous intensity, not pitch, is measured and reproduced.)

The system of television in use before the war had reduced the problem to a simple six-dimensional job; the television channel carried on its signals which kept the receiver informed of six necessary values: sound intensity-vs-time, horizontal and vertical co-ordinates of the light spot, plus spot intensity and time. Three-color television had been tried and demonstrated successfully—on a laboratory basis. Even the standard television signal had to carry, aside from the simple sound signal, six modulation controlling horizontal and vertical timing impulses a signal which controlled general scene illumination — i.e., whether the scene showed a white rose on a gray

A General Electric engineer on the television transmitter adjusting the plumbing—on a ten-kilowatt transmitter tube. It takes real power to push the signals out, and water-cooling for the power amplifiers.

card, or a dark gray mass on a black velvet background—a horizontal and vertical blanking impulse that turned off illumination entirely while the scanning spot returned for a new sweep, as well as spot illumination signals. Even so, the receiver had to draw 60-cycle AC power from a line tied in with that of the transmitter, or added difficulties of synchronization were encountered.

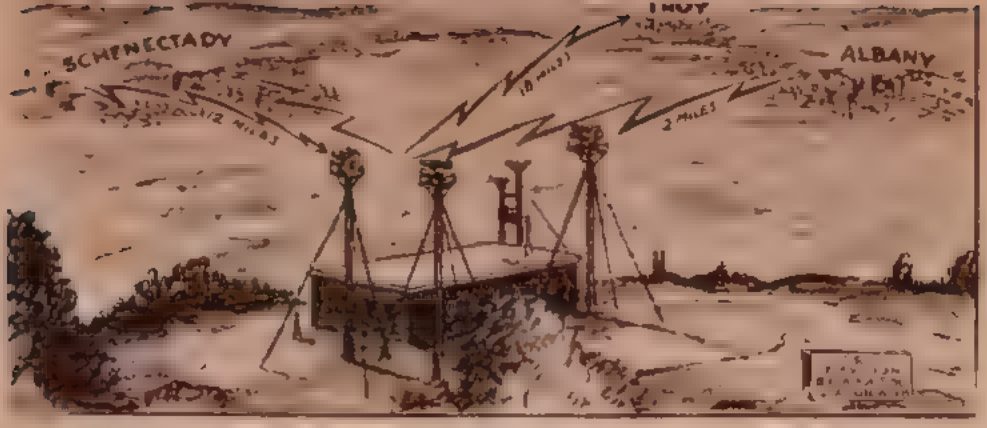
Television was one of most complex problems ever tackled. The immense amount of research expended in solving, even moderately, those enormously difficult problems has given returns in an entirely different field. Electronics is the dominant, invisible weapon of this war; every tactical and strategic operation considered must keep in mind the possibilities of electronic detectors, signaling devices, and every other electronic device. Many of those have been made possible by devices growing directly from the extremely severe requirements television research imposed.

The greater the detail in the television picture, the more individual signal impulses must be sent to reproduce that detail. The standard good-quality magazine half-tone (Astounding's rotogravure photographs are not half-tones; the cover is) has 150 lines per inch—that many dots per inch representing separate detail units. Finer detail is lost. In television, over 500 lines are scanned across the screen each cycle, with 30 cycles per second to

produce a blended, moving picture by retinal persistence. That means 500 x 30 lines per second horizontally, and if equal fineness of detail in each horizontal line is obtained, 500 x 500 x 30, or 7,500,000 individual detail-signals per second. The light-spot must be able to go from zero intensity to maximum in 1/7,500,000th of a second, and back to black in another 1/7,500,000th of a second. But it may be called upon to go from black to white that quickly, and then remain white for the rest of that picture cycle—a thirtieth of a second. It must follow signals varying at a rate equivalent to a frequency of about 4,000 kilocycles as faithfully as it does signals as slow as 30 cycles. A domestic short-wave receiver can follow 4,000 kilocycles without trouble in the radio receiver end. The audio amplifier of very fine, very high-fidelity sets can get down as low as 30 cycles. But a totally different type of amplifying circuit is used in the high-radio-frequency section, and in the audio frequency amplifier. The television circuit had to be developed—one circuit that would amplify everything and anything all the way from the lowest audio frequencies all the way out to and including the nearer short-wave radio frequencies, and amplify them all *equally*.

The problem, gentlemen, is a lulu. You start by developing a totally new type of extremely high-gain pentode, and work up a circuit that will give you all the gain you can get at the 4,500,000-cycle range, where gain is almost ungettable.

Because of the extremely high radio frequencies required, television signals are stopped at the horizon. Network broadcasting of television, therefore, requires relay stations. This one bridges the New York-Schenectady gap.



By locating on a hill, the G-E station W2XB can beam its transmissions to three nearby cities in line of sight directions with equal efficiency.

Then the gain at more normal frequencies—a mere 50,000-cycle supersonic frequency—is enormous, because the adverse conditions that cripple even your new super-gain tube at those high frequencies aren't operating at this lower frequency. So you add a special circuit that does cripple the gain at the lower radio and higher audio frequencies. It's somewhat like getting a convoy through sub-infested waters; you pick the slowest tub in the lot, and let it set the pace. Then drags, reduced boiler pressure, and other crippling methods are used to cut down the speed of the faster ships. Finally, at the very low audio frequencies—the 30-cycle end—the measures used to cripple the high gain begin to show up as too effective, and a crutch is added for that end.

It's a wonderful and fearful circuit—but it does the job required. Electrically, it's something of a designer's nightmare. The actual equipment is simple enough—a few tiny resistors, a few pencil-thick inch-long paper and tinfoil condensers, a pair of small inductance coils. It was the difficulty of calculating just what was needed, and finding out how to compromise that took so long, and was so hard to accomplish. They had that fairly well worked out, when the war started.

Surprising what war developments have done. That new super-gain tube, for instance. Pretty clumsy, inefficient gadget, it appears now. And that cathode ray viewing tube! Seven thousand volts, with the lethal kick of a high-capacity condenser, doesn't belong in the household! There's something inherently wrong with the idea of controlling the device that produces the light; light-generating equipment is usually power-consuming, massive, and clumsy. The right way would be to develop a system of generating the light in device A, and controlling the light after it was produced. Control the light, not the light-generator.

My bet is that the post-war receivers have a 500 or 1,000 watt tungsten filament projection bulb as the light source, running on 110 volts, not a cathode ray tube running on 7,000.

THE END.

Refraction and Lenses

by GENE MITCHELL

***Lenses,** in cameras, in microscopes, periscopes, telescopes, in a thousand instruments, are prime instruments of war, whether against men or microbes. And the laws of nature seem to be plumb set agin 'em!*

So far, nobody has been able to photograph a landscape by the light of the full moon in a tenth of a second, which accomplishment is a cinch for any normal eye. Don't blame the lens designer for that, though—the marvelous ability of the eye to record a picture with really low illumination is due almost entirely to the superb sensitivity of the retina. So, if you want a camera that will come somewhere near photographing anything you can see, take your troubles to the emulsion makers—not that they don't have enough troubles already.

The lens of the eye, working under the most extreme conditions of dim light, has a relative aperture of about f/2.2. Camera lenses of f/1.5 are fairly common nowadays, and for some purposes where everything must be sacrificed for speed, apertures as large as f/0.67 have been obtained. What's more, the f/1.5 lens will focus a much sharper picture over a much larger area than any human eye, and in general beat the eye under any conditions you may care to name, except for the automatic focusing feature. And don't bet that that won't be done some day.

A designer working on a camera lens has a lot of different things to think about—many more than we have time to discuss right now. For the present writing, let's confine ourselves to his first concern—the stuff he's going to make the lens out of. In other words, let's take a look

Bausch & Lomb

Semiprecious jewels of the optical industry—fine optical glass broken from the special—and expensive clay pot in which it was made.

at the characteristics and peculiarities of the various optical materials which have been, or may be in the future, used in lenses.

Sir Isaac Newton, the first great "opticist," discovered in 1666 that white light is not something individual and unique, but a mixture of

all the colors. He didn't know at that time anything about electromagnetic radiation, nor that his spectrum consisted of waves of light running in wave length from about 3800Å to 7400Å—1 millimeter = 10,000,000 Ångstrom Units. But he did show that he could split white light into a spectrum with a prism, and then recombine the colors into white again with another prism. He found, too, that, if the second prism was turned crosswise to the first, he could spread the spectrum out diagonally, but he could produce no further splitting up of the light.

Incidentally, Sir Isaac's account of his experiments in optics is fine reading, if you can find a copy.* It certainly demonstrates the caliber of the mind that made some of the most fundamental discoveries of this particular branch of science, with no other equipment than a few simple hunks of glass and a hole in a window shade for a light source. (He has gained a certain amount of fame from his work in several other fields, too.) Fortunately, Newton was mistaken in one of his beliefs that any glass prism of the same angle would spread out the spectrum by the same amount. We'll see later why it's so fortunate that he was wrong.

A beam of light entering a piece of glass is bent, or "refracted," at the surface, because the velocity of light is less in glass than in air. The refractive index of the glass is the ratio of the velocity of light in air to the velocity in the glass. However, light of short wave lengths doesn't travel as fast in glass as light of long wave lengths, so that a bundle of, say, blue light is bent more than a bundle of red light, and the refractive index for the blue light is higher. This phenomenon is called dispersion.

All known optical materials have a certain amount of dispersion. Nobody knows exactly why, although the most widely-held theory is that the index gradually increases to infinity at a wave length where the material is completely absorptive. All these materials have bands in the far ultraviolet where they are completely opaque. Presumably, a material which was completely transparent to all wave lengths of the electromagnetic spectrum would have no dispersion at all. And would that stuff come in handy!

Lens designers usually refer to light neither by wave length nor by color, but by letters which represent certain monochromatic lines in the emission spectra of certain elements. Before going any further with the subject, we'd better understand just what these letters indicate.

First on the list in the *D* line, 5893 Å, which is not a line itself, but halfway between the two strong yellow lines of the sodium spectrum. For regular use, the light is usually generated in a sodium arc lamp, similar to those used in

* Sir Isaac Newton: "Opticks: or, A Treatise of the Reflexions, Refractions, Inflexions and Colours of Light," London, 1704. An interesting short article on Newton's life and accomplishments by E. N. DaC. Andrade appeared in the Proceedings of the Physical Society, *55*, #308, March 1943.

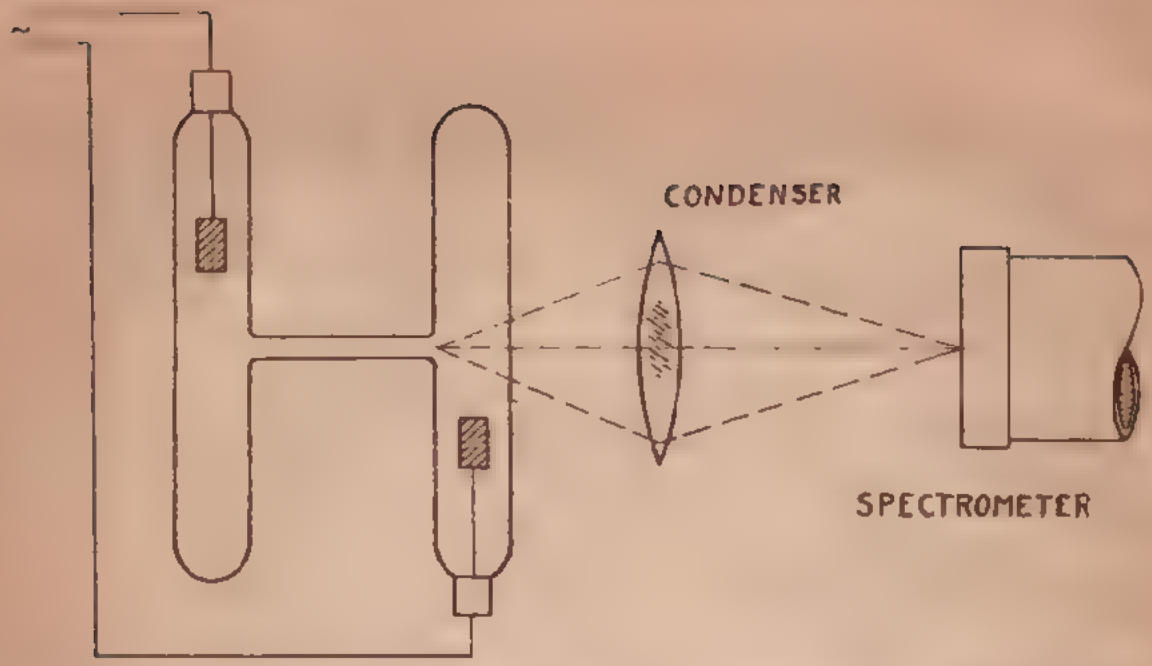
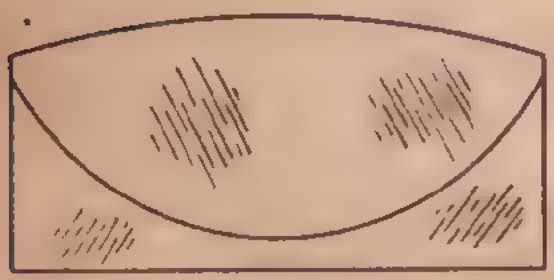


Fig. 1. The H-lamp set-up allows the weak luminosity of a gas discharge to reach a usable intensity by looking along the thin gas-discharge column.

Fig. 2. Two cemented doublet lenses, both corrected achromats, using crown and flint glasses. Top represents a good choice of glasses; bottom, an optically similar lens, but a poor choice of glass.



many places for highway lighting. In a pinch, though, or for home experiments, sodium light can be produced very easily by tying around the top of a Bunsen burner an asbestos wick, which is kept moist with a solution of table salt.

Next come three lines of the hydrogen spectrum: *C* at 6563 Å, which is a fine, rich red in color; *F*, 4861, a bright pure blue; and *G'*, 4341, which is an intense deep violet. These lines are usually produced in a low-pressure gas discharge tube, commonly called an H-tube because it looks like Fig. 1.

Hydrogen doesn't display a particularly bright discharge, but there is a comparatively high current density through the small connecting tube: and when this tube is viewed end-on, it's a source with plenty of intensity for the purpose.

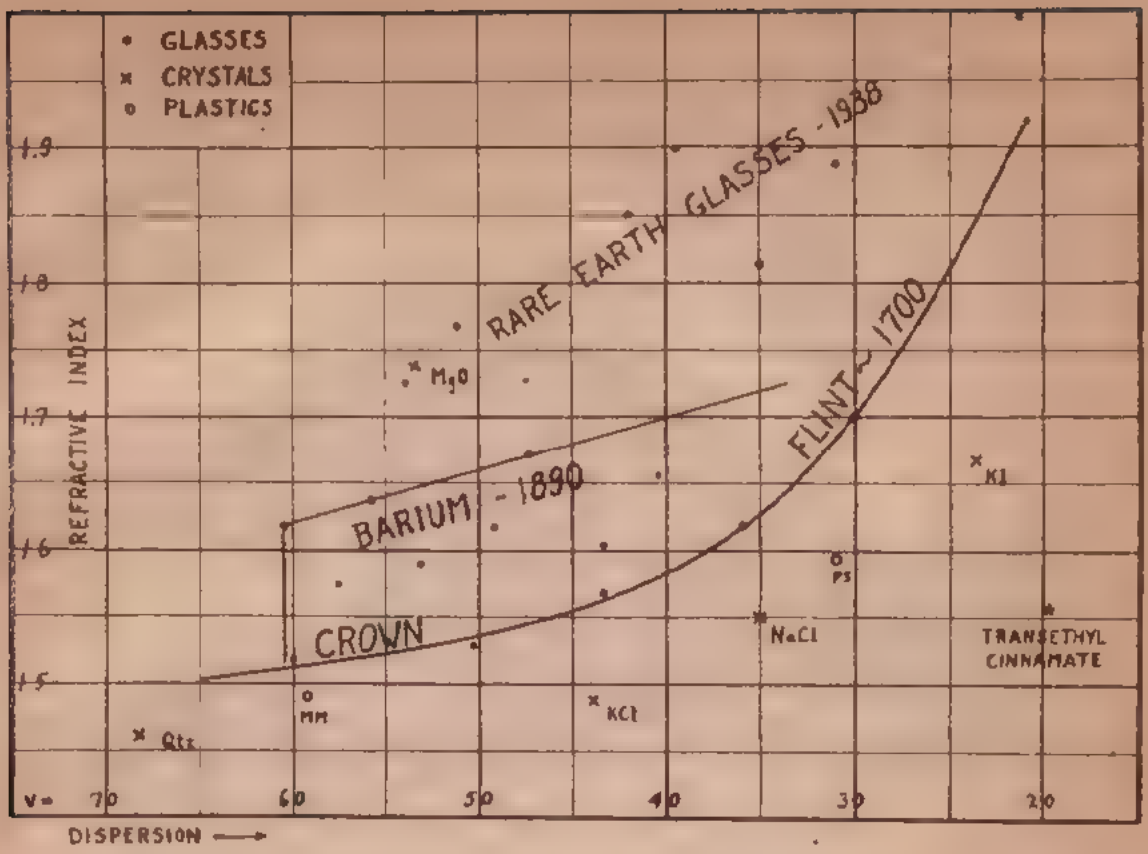


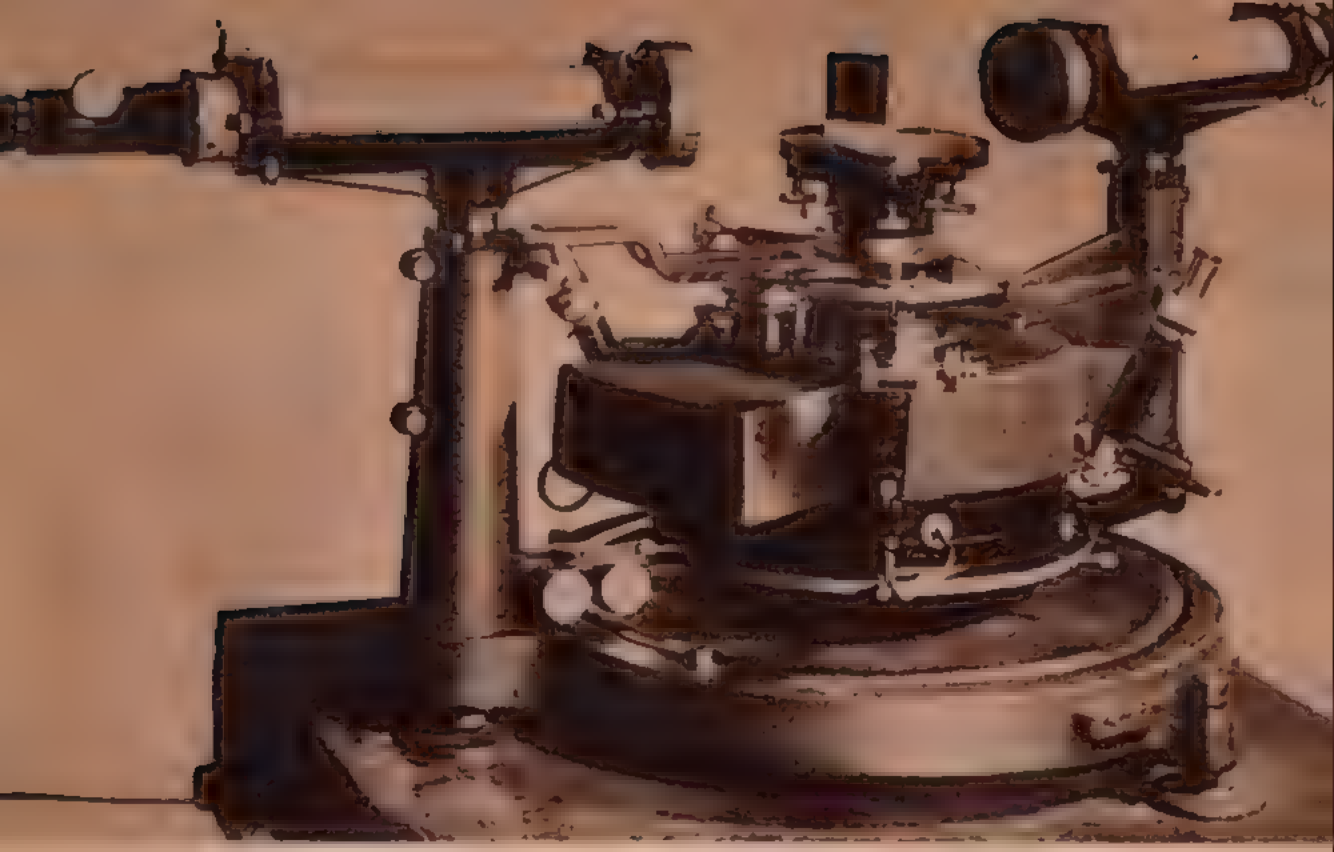
Fig. 3. A graph of the characteristics of optical mediums, plotting light-bending versus color-separating powers. All lens design hinges on these.

Sometimes used instead of the sodium D is *d*, a yellow line of the helium spectrum at 5876. The Chance-Parsons Co. of Birmingham, England, lists indices of their glasses for *b*, 7065, from the helium spectrum.

Most of the rest of the lines we'll be referring to are found in the mercury arc, and mercury arcs are used so widely nowadays that we won't need to describe them. The important lines are: *e*, at 5461 Å, a brilliant green, and just about the wave length for which the eye has maximum sensitivity; *g*, 4358, a violet sometimes used instead of *G'*; *h*, a very deep violet at 4047; and a very "hot" line at 3650 A, which has no letter, and is usually classed as near ultraviolet, rather than visible light.

Strangely enough, no use is made of the bright yellow mercury doublet at 5770 and 5791. As a matter of fact, the mercury arc should be quite satisfactory as the only source used for refractometry. Sufficient data to describe the dispersion curve of a glass could be found from the wave lengths already mentioned, plus the red line at 6907, and two lines in the near infrared, at 10,140 and 11,287 Å. However, it's just like a lot of other things—the glass-makers will stick to their *C*, *D*, *F*, and *G'* for some time yet.

There is just one more line we



High-precision spectrometer, made by Gaertner Co. Angles may be read to one second of arc by means of the four scale-reading microscopes.

need to know, and that one is found in the spectrum of potassium. It's called *A'*, the wave length is 7682 Å, and like *D*, it is the average of two fairly close lines. In color, it is a very deep red, somewhere near the limit of visibility. In case you want to refer back to these lines, let's list them, with the wave lengths, the elements they come from, and their colors:

Name	*Wave Length*	*Element*	*Color*
A'	7682 Å.	Potassium	Very deep red
b	7065	Helium	Medium red
C	6563	Hydrogen	Bright red
D	5893	Sodium	Chrome yellow
d	5876	Helium	Bright yellow
e	5461	Mercury	Bright green
F	4861	Hydrogen	Pure Blue
g	4358	Mercury	Violet
G'	4341	Hydrogen	"
h	4047	Mercury	Deep violet

To get back to glass, it's the dispersion that makes a prism spread white light into a spectrum. And whether the glass is made into a prism or a lens, it still bends *F* light more strongly than *C*. This means that a single lens will focus blue light a lot closer than red, and the foci for all the different colors of the spectrum will be strung out at different distances from the lens. In other words, the lens has "chromatic aberration." Newton believed that all glasses would have the same amount of dispersion, and that therefore any combination of lenses must have chromatic aberration. It is for that reason that he became interested in reflecting telescopes, which aren't troubled with that particular aber-

Bausch & Lomb

Abbe refractometer. Not as accurate as the spectrometer, it is far more convenient to operate, and can be used with liquid specimens.

Harshaw Chemical Co.

One of the newest and most interesting sources of optical materials synthetic crystals. These are not simply fused-and-solidified material, but perfect, large single crystals. Controlled very slow cooling does it.

ration.

But Newton was wrong, and a little later it was found that using lead oxide instead of calcium oxide in their soda-lime-silica glasses would increase the dispersion decidedly. In 1758 an Englishman named Dollond combined a converging, or positive, lens made of the old "crown" glass with a diverging, or negative, lens of the new "flint" glass having more dispersion, to produce an objective with the chromatic aberration corrected—the first "achromat." Such a combination is easy to find now each glass has a number, called the dispersive index or Abbe number, which is found from the following relation: (*n* is the refractive index)

$$\nu = \frac{n_D - 1}{n_F - n_C}$$

Actually, $n_F - n_C$ is the dispersion, and the v-number would properly be called *reciprocal* dispersion. Glasses of increasing dispersions have decreasing v-numbers.

The reason for using the v-numbers is that they may be used in a simple formula to find an achromatic combination of glasses:

Harshaw Chemical Co

The crystals, as grown, are chunky cylinders topped by a cone. From these, lens blanks, prisms of various shapes, and other forms can be sawn. Crystals of "unnatural" optical perfection are made synthetically.

$$f_1 = \frac{v_1 - v_2}{v_1} F, \quad f_2 = \frac{v_2 - v_1}{v_2} F.$$

f_1 and f_2 are the focal lengths of the two individual lens elements of the two different glasses, and F is the focal length of the system resulting when the two elements are cemented together. Such cemented doublets are still used (Fig. 2) for telescope objective. The crown glass is on the left, and the flint on the right. The first combination is one made of two glasses whose v-numbers are quite different, say 60 and 40. The other combination shows what happens if the two v-numbers are too close together, for instance 60 and 52.

Fig. 3 is a chart of a number of different kinds of optical glasses, as well as some other interesting materials. The index for *D* light increases along the vertical scale, and the dispersion remember, it runs in the opposite direction from the v-number – along the horizontal scale. The index and v-value of an ordinary soda-lime-silica crown glass are 1.52-60, and as lead oxide is added, the index goes up and the v-number down. We come successively to 1.54-50, 1.57-43, 1.62-

36, 1.70-30, and finally to 1.92-21, which glass is ninety percent lead!

The reason for using *C* and *F* light for calculating the dispersive index of a glass was that they include the section of the spectrum which is brightest to the eye—in 1800, the photographic plate hadn't been invented. So that achromatic lenses corrected this way were fine, and everybody was happy. Until they started to make photographs. And then the photographers found that after they had focused a picture on the ground glass, they had to shift the plate away from the lens a certain distance, or the negative would be out of focus. The trouble is that, when two glasses have different dispersive indices, the one with the higher dispersion —lower v-value—has a *proportionately* higher dispersion at the ends of the spectrum than it does in the middle. If two glasses are calculated to make the *C* and *F* foci fall together, the *D* and *e* foci fall a little short, the *A'* and infrared wave lengths focus farther from the lens, and the *G'*, *h*, and ultraviolet still farther away. The answer to this problem was to redesign the photographic lens to bring *D* and *G'* light to the same focus: *D* from the middle of the visually brightest part of the spectrum, and *G'* from the middle of the actinic range, or the blue and violet wave lengths to which the first photographic emulsions were sensitive.

As a matter of fact, this *D-G'* type of chromatic correction is still used for photographic objectives, as it has proved perfectly satisfactory for even the latest panchromatic materials, when used without a filter. Of course, photography in the infrared is an entirely different problem—you photo-bugs know that you have to change focus a little when using infrared-sensitive film.

Meanwhile, this inability to bring more than two wave lengths to the same focus—the residual chromatic aberration in an achromat is known as "secondary spectrum"—had caused trouble in another field. As soon as the principle of the achromat had been discovered, the astronomers seized upon it gleefully for their purposes. The mirror telescope proposed by Newton was entirely too hard to make of good quality, so the refracting telescope enjoyed a rebirth of popularity. Of course, the next thing the astronomers proceeded to do was to make their objective in larger and larger diameters and longer and longer focal lengths. And when they made really big ones, they found that all the star images were surrounded by big purple circles—secondary spectrum again. So they went back to reflectors for their king-size telescopes. The refractors still have advantages for some purposes, but that's another tale.

We've seen the influence that lead oxide has on glass. A lot of other things* have been put in to change the characteristics, especially barium. About 1890 the Schott & Gen. Glasswerk, a subsidiary of Carl Zeiss, discovered that, by add-

* For instance, Kuan Han Sun: "Beryllium in Optical Glass," The Glass Industry, *24*, pp. 155, 217; April and May 1943.

ing barium to a glass, they could raise the refractive index without changing the dispersion, and such glasses as 1.62-60 became possible. This was a fine thing for lens design—some authorities claim that the barium glass was the outstanding optical advance of the nineteenth century. And in 1938 the Eastman Kodak Co. patented* a series of glasses which contain no silica at all, but are composed largely of oxides of some of the rare-earth elements, particularly lanthanum, tantalum, and thorium. These glasses have still higher indices than the barium glasses, without a corresponding increase in the dispersion.

Another recent modification is "wheel-barium" glass. Occasionally, especially on Monday morning, all the glass workers will be dumping their wheelbarrow loads of chemicals into the glass-pot, when one of the workers will slip and dump in his wheelbarrow, too. Then we get wheel-barium.

Still, with all the optical glasses now available to the lens designer, the secondary spectrum can't be removed from an objective. With a few minor exceptions, no matter what pair or series of glasses is selected from the catalogue, any two lenses, of the same focal length and having the same wave lengths achromatized, have *exactly the same secondary spectrum.* The minor exceptions are some glasses which make the secondary spectrum a little larger, particularly the flints with the most lead; and a couple of glasses listed in the Schott catalogue, having comparatively poor chemical and physical properties, with which the secondary spectrum can be reduced by about one fourth.

One more thing should be noted about glass: Various ways have been found to raise the index from those of the original crown-flint series, without increasing the dispersion; but nobody yet has been able to make a glass go the other way, and increase the dispersion without a corresponding rise in the index. It almost seems that the crown-flint line, which is marked with a heavy line on the chart, is a division line between glasses and "natural" substances; i.e., crystals and liquids. All the known glasses lie above the line; and with a few exceptions, such as magnesium oxide, practically all crystals and liquids lie below it. Very little use has been made of liquids in optical design, but just as a matter of interest, one example—transethyl cinnamate—has been put on the chart.

So far, we have considered only the inorganic glasses. There are two other types of optical materials we should have a look at—crystals and the organic plastics.

As is well known, enormous strides have been made in the field of plastics in the last few years; and quite a bit has been said about the possibilities of using certain of them in optical instruments. Mostly by men who are not too familiar with the problems of optical design. It's

* U. S. Patent 2,150,694. G. W. Morey, assigned to the Eastman Kodak Co.

quite true that plastics will undoubtedly be useful in some of the less critical applications. Nevertheless, all those known, at least those which are sufficiently transparent for optical uses, suffer more or less from at least one of the following defects:

1. Lack of homogeneity.

2. Difficulty of producing optically accurate surfaces.

3. High coefficient of thermal expansion, leading to a serious change of shape or distortion of the surfaces when changed in temperature by an amount which won't bother a piece of glass at all.

4. Softness.

I want to emphasize that this is the present state of the art. Certainly it seems unbelievable that, among the infinity of possible organic compounds, there shouldn't be a few with highly desirable optical properties, and which wouldn't suffer seriously from any of these drawbacks. One of the difficulties seems to be that, with all the work being done on the many different applications of plastics, nobody is investigating them with an eye to their possible use in high-quality optical systems. At least, if anyone is, he isn't talking.

There is a good discussion of the optical qualities of some of the more common plastics by B. K. Johnson in the Proceedings of the Physical Society.* Two of those for which optical data are available might be of value to the lens designers: methyl methacrylate—Lucite—and polystyrene. Lucite has a v-value of 59, the same as that of an ordinary crown glass, and an index of 1.49, which is .03 less than the lowest index of a glass with that v-number. Polystyrene has an index of 1.595, that of a medium flint glass, and a v-value of 31, which is eight less than the lowest for a glass of that index. Here are two cases where plastics accomplish something heretofore impossible for an inorganic glass. An all-plastic achromat could be made from these two materials.

There is a good deal not known about the exact value of using these two plastics in optical systems. All the designers have plenty of work to do with materials that are already available—they don't have time to make comprehensive investigations of plastics, when no chemist wants to say just how long it will be before he can make them good enough for optical purposes. As a matter of fact, it will still be quite a while before the advantages of the new rare-earth glasses are fully explored. Patents covering various uses of these glasses have been issued more or less regularly ever since they were first announced, and will undoubtedly continue to be issued for some time yet.

And that brings us to the crystals. There are a number of crystals used for various optical purposes, perhaps the most surprising of which is rock salt! Prisms made

* B. K. Johnson, "Recent optical materials and their possible applications," Proceedings of the Physical Society (London) *55*, p. 291, July 1943. Two other good articles on plastics appeared in the same issue.

of large NaCl crystals have been used for many years in spectrometry, because of their transparency to extreme infrared wave lengths. Glass becomes quite opaque beyond 25,000 Å, while salt will transmit out to 110,000 Å, and sylvine (KCl) will pass wave lengths as far as 220,000.

The chief drawback of using rock salt, as well as the other alkali-metal halides, is—guess!—its solubility in water. Which means that it must be polished dry, or by using kerosene as the vehicle for the polishing rouge. A finished prism is usually pink, from the rouge that has been polished into the surface.

Of the other crystals, most are useful because of their high transmission in the ultraviolet, since even the clearest crown glass absorbs wave lengths below 3200 Å. One of the most interesting uses of crystals for the ultraviolet was reported by B. K. Johnson,* who made an achromat out of lithium fluoride and fused quartz—SiO_2. The lens is achromatized for *e* and 2749 Å, which means that most of the visible spectrum and the near ultraviolet are brought fairly near to a common focus. Another achromat of the same two crystals was described by Stockbarger and Cartwright,** who found that they could make a fairly good correction of the whole spectrum between 1800 and 14,000 Å. 1800 is far ultraviolet, just about the point where the air itself becomes opaque; and 14,000 is medium infrared, about the longest wave length which can be photographed on present emulsions.

A somewhat similar correction was made in a microscopic objective by the Bausch & Lomb Optical Co., although glass was used. The two wave lengths brought together were the mercury *e* line and the strong mercury line at 3650, to which most glass is quite transparent. Of course the secondary spectrum is something fierce, but the idea is that the microscope is focused in monochromatic *e* light from a mercury arc, which is highly visible, and then the system is correctly focused for making photographs in the ultraviolet, using the 3650 radiation from the same light source. Since the resolving power is inversely proportional to the wave length of the light used, this little trick gains about fifty percent in resolution.

Some of the crystals have very unusual index-dispersion relations, particularly fused quartz and the halides. These are marked on the chart. Lithium fluoride has an extremely low dispersion—n=1.39. v=106, 'way off the chart—and since this and some of the others can now be made artificially, it may be that they will find use in future designs. Dr. Stockbarger of M.I.T. has devised an ingenious method for growing crystals of almost any desired size, and his method is be-

* B. K. Johnson: "An improved achromatic reflection microscope," Proc. Phys. Soc. *53*, p. 714, November 1941.

** D. C. Stockbarger and C. H. Cartwright: "On lithium fluoride-quartz achromatic lenses," Journal of the Optical Society of America, *29*, p. 28, January 1939.

ing used in production by the Harshaw Chemical Co. of Cleveland.* The method was described in detail by B. K. Johnson.

Briefly, Stockbarger's method is this: a platinum crucible containing the molten crystal is suspended in the upper half of a furnace, which is held at a temperature slightly above the melting point of the crystal. It is lowered slowly through an aperture in the middle of the furnace, into a temperature slightly below the melting point. And I *do* mean slowly—the process may take as long as ten days. The crystal starts growing at the bottom point of the crucible, and grows upward as the crucible is brought down into the lower temperature.

One more crystal used for optical purposes is fluorite—CaF_2. This one is the payoff! The index is 1.434, the v-value 96, and the dispersion curve is almost exactly proportional to some of the ordinary optical glasses having v-values around 61. A lens can be made with fluorite and one of these glasses, which will have almost no secondary spectrum at all!

There's a string tied to this one, though. Fluorite is found in crystals of optical quality of not more than a few millimeters in size, which pretty effectively limits its use to microscope objectives. Microscope objectives have been made with fluorite, however—they're called "apochromatic."

* Available now from regular production are blanks up to 7½ inches in diameter of sodium chloride, potassium bromide, and lithium fluoride.

There are a number of possible future developments in the field of optical materials. The designer always wants materials of index 1.6 to 1.8 and higher v-values, and of index 1.55 to 1.7 with lower v-values. There is no known reason why glasses in these regions should not be theoretically possible, but it's a pretty good bet that polystyrene will be made with good enough quality for optical applications before a glass can be made to duplicate its optical constants.

Plastics will undoubtedly soon be developed to the point where they can be included with glass in the list of permissible materials—recently resins containing silicon have been made, which are halfway between the original plastics and glass in physical characteristics.

As far as the reduction of secondary spectrum is concerned, past attempts to achieve it with glass have been disappointing. Data on the dispersion curves of plastics are not available at present, mostly because the plastics aren't of good enough quality to permit the accurate index measurements throughout the spectrum which are necessary. It doesn't seem unreasonable to believe that in the near future we'll have plastic materials, perhaps even a finer form of some we now manufacture, which can be combined with glasses to attain perfect achromatism.

Whatever does happen, it'll be a long time before the lens designer works himself out of a job!

THE END.

THE ANALYTICAL LABORATORY

Sorry—I think the Lab better skip this issue. The supply of letters so far received is rather scant, the disagreement enormous, and results almost meaningless in some instances. So far, for instance, only about thirty percent of received letters have voted on "Environment"—but of those, all but one single vote was for first place! That one put it No. 8. Naturally, with the calculation system normally used, "Environment" is way out in front. Otherwise, "Latent Image" and "Winged Man," also subject to considerable variation of place, are about tied for No. 1 position. I'll report next month.

THE EDITOR.

IN TIMES TO COME

Besides winding up "Renaissance" next month, Astounding has a collection of stories with unusual background ideas. "Census," by Clifford Simak, is the cover story—a sequel to the series that started with "City." (Which, by the way, has been fluctuating from No. 1 position to No. 8 with wild swings. Disagreement on that one was extreme. Some readers, apparently, saw the background picture, some didn't.) In "Census" Simak points out, and handles part of the great difficulty of the ultimately-dispersed culture. There's a terrible tendency to stagnate—

Van Vogt, on the other hand, has another type of yarn all together: "A Can of Paint." It's a story about—uhuh—but a perfect one. The one imperfection being that the man who finds it doesn't know quite how to handle the perfect can of perfect paint. (The can talks—telepathically!) He spills some on himself. Naturally, perfect paint would be impossible to remove, wear, or wash off, save with the proper remover. And—well, the hero of the yarn was in a nasty position. He had to figure out what a perfect paint *would* be designed to do and not-do. *And* figure it out within a highly restricted time-limit—restricted by one of the natural properties of a perfect paint!

THE EDITOR.

The plan was to invade across the ages with overwhelming force. Turned out, though, that Time is tricky, and a harmless couple without even trying, could annihilate a terrible army!

Bridgehead

by

FRANK

BELKNAP

LONG

Illustrated by Williams

The blond Eurasian giant swung in between the big doors, and crossed the room in three long strides. Thick folds of scorched flesh lidded his pupils and his eyes were red-rimmed from lack of sleep, giving him the aspect of a lean and angry bulldog straining at the leash.

"Sit down, Ivor," a steely voice said. "Over there, where your face won't be in shadows."

Straddling a chair, the giant gripped the seat with both hands, and eased his enormous bulk down upon it. He sat facing the Interrogator, grimacing with pain, fumbling for words that would ease the agony and the shame of his failure.

Invisible lighting flooded the big, blank-walled room, and glimmered on the circular top of the examining unit, which stood against one wall, and encircled an Interrogator whose face was a glacial mask *behind* the glimmer.

"Well, Ivor?" the Interrogator prodded.

"My instructions were to familiarize myself with the First Glass Age Sector, particularly the 'nerve-artery' metropolises on the north-

eastern seaboard and the population overflow areas surrounding them," the giant said quickly, as though repeating a formula learned by rote.

The Interrogator frowned. "Your specific instructions were much more concrete, weren't they?"

The giant nodded uneasily. Surprisingly he did not feel afraid, though he knew he ought to feel terrified.

"My specific instructions were to blast out a strategic temporal bridgehead in one of those areas. What I actually did was pin-chart the entire seaboard to eliminate the bulge areas."

"Well, suppose you tell me exactly what happened in your own words. I should *prefer* not to interrupt you."

"The largest Glass Age metropolis is New York in New York. But there's a bulge there—a bad one. I decided to blast out the bridgehead in the overflow area surrounding a smaller, coastal bay metropolis a little to the north of New York. Boston in Masschutt . . . Massachusetts."

"Well, well?"

"I blasted out a perfect stasis, clear and sharp from our side, but—"

"But . . . pah. It is a synonym for failure."

The big Eurasian paled, then decided to ignore the interruption. "The time seepage absorber must have dilated a little too rapidly. I was standing about forty feet from the edge of the cliff when I blasted. The concussion lifted me up, and hurled me violently forward into the stasis."

The giant paused, as though he were seeking to convince the Interrogator of his sincerity as much by his manner as his words. The pause was soothing to his bruised ego. It enabled him to dramatize himself as a man who could time his feats of endurance to correspond with the expectations aroused by his words. It also enabled him to relive the entire incident with little more credit to himself.

The Interrogator's brittle fingers made a drumming sound on the flat top of the examining unit.

"Go on."

"I allowed for erosion, the blotting out of a half million years of geologic weathering. But I forgot that a slight seismic disturbance could more than offset a complete reversal of the weathering process."

The giant shuddered. "There can be quite a lot of seismic disturbances in a half million years. Instead of advancing, the entire face of the cliff had moved back. There was a new wall, but it was thirty feet behind me. I . . . I dropped forty feet and landed on an outcropping about fifty feet in width, and possibly seventy feet from the bottom of the ravine. The blaster struck the shelf, rebounded, and went clattering on down."

"And you returned without recovering it?"

The Interrogator's voice was no longer steely. It now possessed a tensile edge that would have cut

through steel like a knife through putty.

The giant gnawed at his underlip, and met the Interrogator's accusing stare with mingled pride and humiliation. The pride of a wounded tiger that has fought many formidable battles before receiving scars of which it is ashamed; the humiliation which a grievous error of judgment leaves in the mind when stark urgency makes the retracing of a wrong trail a thing not to be contemplated.

"I weighed the risks, and decided against it," he said. "The cliff wall was almost vertical. I might have gone down. I could not have climbed back. The stasis oval was directly above me, thirty feet from the edge of the cliff. I was badly burned—in need of surgical attention."

"That worried you, did it?"

The giant's color rose. "Suppose I'd gone down for the blaster, been captured, and sickened and died a half million years in the past. Where would THE PLAN be then?"

"Go right ahead. Tell me how you safeguarded THE PLAN by not recovering the blaster. Your instructions were to conceal the stasis oval from prying eyes on the other side. You were supposed to go through, and spray it over with a magneto-optical thin film with the same refractive index as the air around it."

"I couldn't—"

"You don't have to tell me. I happen to know you can't spray out a stasis when it isn't grounded. The vibrations would . . . pah! Only saving grace is the glimmering won't be visible from the ravine."

"It won't be!" the giant echoed the words as though they were pearls beyond price. "You've got to stand on a level with a stasis to see it."

"It will be visible from the cliff top," the Interrogator hammered, shattering each pearl with merciless precision. "But don't get the idea I'm worried about just that one oval. If they find that blaster, they'll know they've had a visitor."

The Eurasian's lips were white. "How could they know? They did not believe time travel to be possible. Their weapons were all incendiary, not atomic. In a crude way they altered electronic orbits and laid the groundwork for much that we have come to regard as end products. But—"

"Like the relativity of time," the Interrogator suggested chillingly.

"They were familiar with the concept, of course. They could *imagine* what it would be like to leave their own age, and travel into the past. But they no more thought they could do so than that they could travel to . . . to Betelgeuse."

"You think so?"

"I do, yes. The concept of time *blasting*, of time undermined and made cavernous, would be utterly beyond the comprehension of Glass Age primitives. Quite apart from the contrasting primitiveness of mining and quarrying with crude detonating instruments in three di-

mension, the sheer audacity of THE PLAN would—"

"Pah—a mouthful of rhetoric. Now you've spit it out, suppose we strip the binding energies from a few facts. We've blasted out temporal bridgeheads at strategic temporal intervals clear back to the Old Stone Age. The past is honeycombed now, and it's going to become more so. Suppose they find that blaster, blow out a stasis of their own, and start searching for our riddlings.

"Suppose they find one of our riddlings without searching, like the one you left glimmering in plain view when you allowed for erosion, but not for brain shrinkage. If they find the blaster, they'll be all eyes and ears. Suppose they close in on one of our Sector scouts right after he's blown a stasis, and before he can spray it out?"

The Interrogator had shut his eyes, and seemed almost to be speaking to himself. "The success of the entire PLAN will depend on how quickly we can move back and forth through time. If we attempted to conquer each age separately, if we attempted an age-hopping campaign, the divergence in weapon power alone between the more primitive societies and the atomic power civilizations close to our own age might easily result in a decimation of our forces.

"The struggle in many temporal sectors may go against us at first, but, if we can retreat through the stasis ovals when we're hard-pressed, we'll be in a position to regroup our forces. We'll stage a

fluid attack on *all* of the past, a stupendous temporal blitz which will pit age against age until we're victorious.

"Our enemies will have to fight in one age, with a limited array of weapons. We can utilize not only our own weapons, but the weapons of every age, the peculiar military genius of every age in which those weapons originated. Since the location of the sprayed-over stasis ovals *will be known to us alone* we'll command all the arteries into the past, all the temporal bridgeheads."

The Interrogator seemed to have forgotten that one artery had become dangerously insecure through the development of an unforeseen flaw in the mental alloy of the man before him.

But suddenly his eyes unlidded themselves and became cobra-opaque.

"Tell me, how did you get back through a stasis that was hovering in the empty air forty feet above your empty skull?"

"I . . . I climbed back to the top of the cliff and took a running leap," the big Eurasian stammered.

"I see. A severely burned man

could do that, but it would be asking too much to expect him to go down into a shallow ravine and recover something that's sure to be missed. Suppose you try that on, just for the fit."

"My burns—" the giant whispered huskily. "I knew if I lost consciousness before I could—"

The Interrogator cut him off by leaning sharply forward.

"Tell me, Ivor. Just how much would you have told them? We know they were not squeamish. They had means of getting at the truth, gradations of torture—"

"I don't know," the giant said, with startling candor. "We no longer torture a man when we want him to speak the truth. We put a drug in his food, so that he doesn't even suspect that he has been sentenced to death. We—"

The giant's pupils dilated and he leaped up with a startled cry.

"COVERALL said I'd feel better if I drank some . . . no, *oh no!!* Why are you nodding? COVERALL didn't . . . no, no, wait . . . you must wait! Don't cut me down —not like that—it's horrible that way, it's horrible, it's horrible—"

The compact little energy weapon in the Interrogator's clasp tore a gaping hole in the giant's chest, spun him about, broke his back, and almost cut him in two.

For a full minute it continued to revolve, splashing radiance on the walls and ceiling of the big room, releasing its energies with a hornet's nest drone.

Actually it made very little noise, and the giant was dead when he struck the floor. But for a full minute the redness welling up from his chest gave the Interrogator an illusion of continuing vitality on which to vent his rage.

He vented it by keeping the weapon trained on the inert lump of flesh until it no longer resembled anything human.

"Things are all right with us now, Eddie," said Betty-Jane Keenan. "But where will we be tomorrow?"

Eddie Keenan stared straight up the hill through the windsights of his converted jeep roadster, telling himself that now he'd married the girl he'd have to watch his temper. He didn't want to lose any part of his everything, waves and waves of happiness swirling around and around somewhere inside of him. Marriage could break up over a little rock as well as a big one, and it didn't take much to wreck a cottage in the pines on the crest of a post-war argument.

"Eddie, I know I shouldn't say anything about it. You'll think I'm nagging you when I'm only thinking how much happier you'd be if you had a steady income. You know what they say about a man who makes his living by his wits. *Of course* you're clever. Very few people could live as luxuriously as we do in short jumps and spasms. Every seventh week we're in the chips, we're jive-happy. Then we sit on the edge of the cliff patching up a parachute with I. O. U.'s and crisp new pawn tickets."

Eddie gave the wheel a savage

twist. "Aw, B-Jane, you're making a mountain out of a rejection slip."

"Am I? The last time you pulled yourself back up by your bootstraps the girl you married almost ran off with a psychiatrist. It just shouldn't happen to such really nice people like ourselves."

Eddie gave the wheel another twist. "How much did I get for my last gag, B-Jane?" he said softly.

"Five hundred dollars—for something with no sense."

"And how long would it take you to save that much if I just sat in a cage thumbing through other people's money? That gag welled up from my subconscious in exactly a tenth of a second. Typing it out took a couple of minutes, but—"

"Yes, I know. But who did you ghost-write it for? A pigeon-chested crooner who'll stick his neck out so far one of these days somebody will mistake him for Thanksgiving's little gift to Lizzie Borden. One of these days he just won't be around, but we will—with nothing to look forward to but a long life behind a seeing-eye dog together."

"B-Jane, the trouble with you is you're afraid to grease the roller coaster. You want to feel safe every waking hour. There's no safety in writing gags at twenty bucks a comma, but it's nice work if you can get it. *I* can get it."

"Eddie, you're heading into trouble because people who live by their wits end up at their wits' end. The well dries up, the big, bad, lone wolf of a late-sleeping, timeclock-avoiding genius runs out of ideas. Did you ever know one who didn't?"

"No-oo— Look, B-Jane, that last crack, about my being a wolf. You don't really think I'm a wolf."

"I wouldn't have married you if you weren't. Oh, Eddie, oh, Eddie, oh . . . look out—"

It might have been a worse accident. All the car did was leave the road, turn completely about, balance itself on two wheels and slither down into a ditch.

Neither Eddie nor Betty-Jane was hurt. But the car was in such a condition that just climbing out, and ascending to the road left them angry, flushed and winded.

"B-Jane," Eddie stormed. "We were gypped! That salesman gypped us! The next time I buy a jeep, I'll go down on my hands and knees, and check on its adhesiveness. If it's been over too many cow pastures—"

Eddie kicked a stone at the edge of the road, and decided it wasn't big enough. He vented his spleen on the inanimate, allowing expletives which gave Betty-Jane the most intense satisfaction to well up from the depths of his mind without worrying about replacements.

"Eddie, when you use words like that you're not the man I married. You're making me fall for somebody I really could like."

"That so? You'd like the guy even better if you could hear what he's thinking."

"Eddie, a big stone under one of the rear wheels would be more

practical than the heaviest sort of cussing. I'll help you heave. Just find a stone, and . . . hey, be sure it's a big one!"

Eddie had turned and was already advancing across the road toward a woody stretch where gloomy looking trees clustered thickly.

"Well, I'll see if I can find a stone!" he called back over his shoulder.

Betty-Jane could hardly believe her eyes when she saw the "stone." It was massive, and it glittered, and he was cradling it in the crook of his arm the way he'd have cradled a gun if it had been a gun—which of course it wasn't.

It wasn't, that is, at first glance. When he came up over the hump of the road and she got a good look at it her incredulity diminished a little, and she feared she might have to kiss good-by to her sanity.

He'd been gone twenty minutes, a long enough time for something outlandish to happen. But how could he have wrapped himself in an . . . aura when his gait showed he couldn't have met up with an old brass rail and a row of pink ladies. Certainly the gun wasn't pinkish, and he was backing away from it and making faces. He was holding it.

"B-Jane," he panted. "Look . . . look at this! Look at it, B-Jane! It's some sort of outlandish weapon. There's a cliff back there, and it was lying—"

She knew he'd come straight to her with the gun because he was like a little boy in some respects. He just couldn't keep shining new discoveries to himself. Most of his discoveries were subjective, but this one certainly wasn't.

It seemed odd to her he should have used a word that had popped up out of her own subconscious in connection with it until it dawned on her he'd been peppered and made dizzy in precisely the same way.

Odd—but understandable. The gun *was* outlandish, as though it had come right out of one of those imaginative science magazines which Eddie was always reading. Visitors from other planets, fantastic future weapons, and—things.

When she shut her eyes she could still hear Eddie praising the superlative insight of the writers, as though the tentacled thing with a puckered mouth on one of the covers had slithered right out from the compact little magazine in Eddie's pocket.

"B-Jane, a good many of these stories are mature, genuine. Not enough people realize how much sound science and mental elbow grease goes into them. Take that ray gun now. You can bet your sweet life the artist who drew that had to sweat holes in his imagination."

The weapon in Eddie's clasp looked as though somebody had been sweating holes in the Government's post-war priority program. Apparently a lot of valuable new metals had gone into it, along with some very tensile mental haywire. It had a startling you'll-never-guess-where-*I*-came-from look.

Betty Jane would have preferred

not to try, but she knew she'd have to when she saw how pale Eddie was. Along with the shining new discovery look his eyes held unmistakable glints of panic.

"It was lying in a pool of rain water right at the base of the cliff, B-Jane. How do you suppose it got there? It's a high-bracket piece of hardware, all right—complex, massive. I can't imagine anyone deliberately—"

"I can!" she said, snatching it from his clasp as though it were a razor-edged top he'd won shooting marbles. "Post-war letdown unhinges bright young inventor. In the blue Massachusetts hills he has what he thinks is an inspiration. He'll use the family barn, and that big junk pile the neighbors are always adding to.

"Night and day he keeps plugging away, and suddenly—he has it, he's got it! A weapon that'll separate out the fatty components of milk, that'll churn milk up into butter before it leaves the cow. He gets all steamed up, and rushes out into the woods looking for a purple cow. But suddenly again . . . you know how crackpots are . . . he gets the idea the weapon is an unwanted kitten, and tries to drown it, in a pool of rain water. Then he gets scared, or something, and *you* happen along."

Eddie did not even smile. "B-Jane, if a crackpot invented a weapon as complex as that it might not be—a laughing matter."

"Oh, shut up!"

Betty-Jane was trembling in spite of herself. The gun was complex, all right. The barrel flared, and was so dazzling it blinded her. In fact, it hurt her brain when she concentrated on it, so that for an instant she had the illusion that her skull was being crushed by a nutcracker with invisible prongs.

But the heavy stock was the really complex part of the gun—a gleaming conglomeration of notched disks, wheels, knobs, and dangling strips of metal so intricately welded together they seemed to blend with a glimmering conglomeration of valves, tubes, wheels and dangling strips of metal. Welded together into a compact unit which seemed almost to blend with a gleaming—

Betty-Jane tore her gaze from the stock, and tried to smile.

"Eddie, I didn't mean to snap at you like that. But I wasn't seriously trying to laugh my way out of anything. I don't know where the gun came from any more than you do. How could I know?"

The panic in Eddie's eyes was growing. He hadn't dared tell her the gun seemed to be pointing in the wrong direction. Not that the

barrel was actually twisting back up over the stock. It wasn't as pronounced as that—wasn't in fact anything but a kind of impression he got when he stared at the gun steadily.

It had not been in Betty-Jane's mind to take any chances with so strange, so unfathomable a weapon. But suddenly she had raised it to her shoulder and was sighting it along the road. Suddenly, too, her fingers were moving furtively, almost feverishly over the stock, as though in the depths of her mind were Pandoralike stirrings.

It was on the tip of Eddie's tongue to warn her not to be such a fool, that the gun was not to be trusted. But abruptly, before he could shout a warning, she seemed to sense his agitation. She nodded guiltily, and started to lower the weapon. Her eyes dilated in sudden horror—

The two island universes which had collided inside Eddie's head took their time in going their separate ways in silence. They left a trail of blazing super-novae, and dizzily spinning giant and dwarf stars, hot, cold, red, blue, and yellow—all in the plane of a superecliptic superimposed on the lobes of Eddie's bruised brain, and the little pools of white-hot lava which studded his spinal column.

Then—Eddie's torment became medieval and almost droll. There was no transition period. Suddenly the suns were gone, and very conventional little demons with forked red tails were racing around and around inside his skull.

"Oh, nonsense!" someone yelled out lustily, and the demons were gone.

A long row of very beautiful mint juleps next appeared on the rim of Eddie's consciousness. The rest of his mind was a desert, and across its sands a parched manikin that could only have been himself dragged itself with heaving shoulders. The manikin never seemed to make any progress. But the juleps grew more beautiful—more and more beautiful until the manikin burst into convulsive sobs, and the juleps turned into tall, pale women on the rim of Eddie's mind.

A huge book opened slowly, and a bony finger wrote on a blank page: Sorry, Eddie, but we've got to close up. Here's your check, Eddie—here's your cane and your Homburg. Hey, Eddie, wake up!!

Eddie sat up. The first thing he noticed was his torn-off shirt, which was twisted around his legs. Then he noticed with mounting consternation that his torso was sooty and his trousers ripped. There was deep grass on both sides of him, long, luxurious jungle grass, and he was sitting on something moundlike that felt uncomfortably like an ant hill.

Unmistakably there was a rustling beneath him, accompanied by little stabs of pain lancing up through the posterior ligaments of his knees which were beginning to dissolve in blobs of light.

The rustling grew vague suddenly, and almost he saw the book again.

"Eddie, Eddie . . . hey, we're closing up!"

In a jungle, he thought drowsily, you had to expect ants. Tropical jungle—ants. Long grass—very primitive life—must take it easy. White man—quinine—'sportant to relax—

HUH?

Eddie's faculties were suddenly alert—as sharp as the purple-edged blades of lush jungle grass which had grown up about him.

Memory didn't rush back exactly. It descended upon him like a pendulum swinging down toward him through a pea-soup fog. There was startlement at first, and a lightening of the mist, and then it swung very low with a blazing swish.

An explosion. It had begun with an explosion. Light on her face as she turned, the weapon jerking in her hand. He'd screamed hoarsely and tried to duck. The roar had deafened him and then—

Not too clear. His knees had buckled and there had been—a glimmering? He'd been hurled back into a glimmering? He thought he had because he remembered a sensation of floundering in a sea of light that had become suddenly opaque. He remembered nothing else.

He rose swayingly the instant he realized the gray wall inside his head was hindering his explorations. He could see at once that he was alone in the jungle. No, it . . . it wasn't a jungle. It was a sort of clearing in reverse. Right where he stood the grass was waist-high and thick, but there were blue distances in all directions where the grass grew sparsely, and—

The road was gone. It shocked him that he could miss the road more than his wife until he remembered that the missing road had *included* his wife.

A strange look came in Eddie's face—a look not often seen outside of monastic cells and the battle-scarred waste places of the earth. Almost savagely he told himself that now when there was a . . . a wrongness like the beat of vulture wings all about him he'd be less than a man if he didn't slough off the glowing chrysalis he'd worn on the other track. He'd have to become inwardly lean again, a hard, tough fighter who could take *anything* in his stride. With no holds barred, with only himself to worry about—

"Eddie, grab hold of me—hold on to me, and don't let me think!"

Betty-Jane was in his arms before Eddie's mind could adjust to the chill urgency of spinning the leanness out into a cloak to cover her shuddering approach.

"Eddie, we're not . . . I'm not . . . I could never stand it, Eddie! Dribbling in a straitjacket, being fed through a tube—"

"Tube?" Eddie said, dazedly. Then, as comprehension dawned, "Of course you're not. That's right—just keep digging your thumbs in deep. My tonsils are too large anyway."

"Eddie, it was pure nitric acid torment. Am I hurting you, Eddie. I'm honestly not trying to choke you, or anything. I just had to

make sure you're real and I'm not—"

Eddie forced a smile.

"B-Jane, darling, if you were you wouldn't be talking about it. Folks who have it are catatonically depressed. They're not interested in themselves, or their environment. You're interested, I take it?"

"Oh, Eddie, and how!"

"Sure, then, and it's talking it over calmly we should be doing, like the civilized, top-drawer people we are. B-Jane, *where's that gun?*"

She gestured toward an ingrown clump of jungle grass at the edge of the clearing that had bunched itself up into a dry oasis without consulting the scenery it had managed to displace.

"Right over there, Eddie."

"All right. We'll get around to it. Just a couple of questions first. You say I was blown through a glimmering into here. What made the glimmering?"

"The gun, Eddie. It blew a hole right through the . . . the old stand. A shining oval in the air. But, if you stand a little ways back, you can hardly see it, Eddie. Inside you flounder. I started to walk and ended up on my hands and knees. I thought I'd never get through."

Eddie frowned, and shut his eyes an instant. His furred brow, and twitching facial muscles gave him an aspect of watching little sparkling triangulations canceling themselves out in the darkness behind his eyelids.

"Nuts!"

"Eddie?"

"Solving anything as insane as this by ear is . . . hold on, maybe I've got something. Maybe I have at that. If . . . if that gun had merely blown a hole in the air, we'd still be at the old stand. But if it

had blown a hole in the warp-and-woof stuff of the physical universe—"

"Eddie!"

"Where would we be then?"

"Outside the universe," Jane whispered, feeling like a child who has watched her schoolbooks burst into flames, and must say the right thing before the classroom explodes in her face.

"Well, yes, that's one possibility. But if we were in some unimaginable dimension outside—say in a kind of blister-gall on De Sitter's skin-of-the-orange-turned-inside-out universe, everything would be illogical, mixed up. It isn't at all."

"What's the other possibility?"

"*Time* is a dimension, B-Jane. Time is a dimension, but—what would pure time be like? We just don't know because we could no more live in time than we could live in length without thickness. We live in a world of four dimensions, and time is only one of them. But suppose that gun did something to time?

"Suppose it blew a hole in space-time—the space-time continuum of the physicists—and made a fluid bridge of time between two widely separated space-time frames. Inside the rent you'd have pure time, a kind of stasis in the continuum. Outside—"

"Outside?"

"Two widely separated *ages*."

Betty-Jane made a little whimpering sound deep in her throat.

"You mean you think we may be—in the future?"

"Or in the past," Eddie said. "I'm just guessing, understand. I've just knifed down at random and cut myself a slice of something that may turn out to be nuttier than a fruit cake."

"But, who, Eddie—"

"Who?"

"Who could have invented a weapon like that—"

Eddie was about to reply when he saw in the distance a moving something which made him catch his breath and forestalled a still deeper plunge into the dubious maelstrom of assumptions his thoughts had set in motion.

For a full minute the object remained *very* distant, a scarcely visible red dust mote advancing steadily over the short grass expanse which fringed the long grass, for several miles in a circular direction.

There was no reason why so small an object should have chilled Eddie to the core of his being, and filled him with a terrifying sense of urgency. Yet chill him it did, so that his teeth were chattering when it ceased to be a dust mote, and came *loping* toward them.

Betty-Jane screamed when she saw it, and suddenly it was as large as a lion, and growing larger. It moved almost effortlessly, the muscles rippling along its untiring flanks, and through every aspect of its approach there was as much of stealth as of speed, there was no sacrifice of speed, and it moved with the rapidity of a thunderbolt.

Eddie never knew how he reached the clump of tall withergrass where

Betty-Jane had left the gun. Neither did Betty-Jane, despite the sobbing cry of relief which welled up from her throat when she met him there.

Eddie snatched up the gun, then remembered he didn't know how to fire it. Frantically he plucked and tore at the stock, but it wouldn't, *it wouldn't,* IT WOULDN'T—

Betty-Jane snatched it from him just as the long grass shook, and the cyclopean cat burst through upon them.

She fired from the shoulder, at almost point-blank range.

There was a blinding flash of light, an explosion which ripped at her flesh. The explosion was Krakatoan, and for an instant Betty-Jane was sure that an active volcano had erupted in her face.

The glimmering seemed to precede the explosion by the barest instant, but that, she knew, was an illusion, caused by the fact that sound and light do not travel at the same speeds when convulsing. What she did not know was whether she had blown a hole in the physical universe, or just a hole in the cat.

All she could see was the cyclopean beast etched against the glimmer, its rust-red tusks drooling saliva, its unsheathed claws outspread.

For an instant it hovered directly above her, as though frozen in the act of descending. Then the gaping scarlet hole in its chest became a gushing Niagara, and it went sailing back through the glimmering out of sight.

Before he'd begin his gags Eddie would get up, pace the floor, drink three cups of black coffee, light a cigarette, take six short puffs, crush out the cigarete, examine his haggard face in a shaving mirror, pace the floor, grimace, brush the erasings out of his typewriter, sit down, and—

Then he'd type out the gag, very swiftly with one finger.

It was curious, but Eddie went through the same agony now. He knew the disappearing cat wasn't a gag. It was real, and it was—ghastly. But it wrenched him in the same way, the torturing despair of not being sure, and then the moment of creative frenzy when power flowed into him, and he knew he had something.

He got his arms around his wife just in time. She'd dropped the weapon, and was beginning to sag when he caught her.

"You really hit the keys that time," he whispered hoarsely.

She was sobbing and clinging to him like a . . . a— Stunned, he waited, realizing that the shock and horror had jarred a gag loose far down, and it was coming up despite all his efforts to repress it.

She was clinging to him like a terrified little wood nymph in a wry Scotch nightmare.

"Eddie," she whispered chokily. "It was the *past* I blew a hole in. That was . . . that was—"

"I know what it was," Eddie soothed. "It was a saber-toothed tiger. They were big, weren't they?"

"Big—" Betty-Jane's eyes were

deep pools of liquid horror. "How . . . how . . . how can you . . . take it so calmly?"

"I'm not taking it calmly, B-Jane. But there's something in me— Did it have stripes? No, no, I guess it didn't. Asphalt pit saber-tooths are all petrified flesh and eroded bones, so it could have surprised us more than it did. Now we know. It was dun colored, with red tusks and whiskers."

Betty-Jane was staring past him at the glimmering. It wasn't the only glimmering. Behind Eddie pulsed the first pale oval she'd blown in time. No, Eddie had said space-time. Inside the oval was time, was time—a bridge. It was time inside the oval—time to stop gnawing at her fingernails and trying to swallow her mouth, time to stop pretending she wasn't already quite mad.

Eddie was shaking her. "B-Jane, listen to me. If you crawled through into here, we can crawl back. But it had better be now! Those rents you blew through the back of the looking glass may fill in without consulting us. Where's that other—"

"Right behind you, Eddie."

Betty-Jane was getting her color back. She had wanted out desperately, but now that the first oval was in plain view behind her husband's right shoulder her eyes were shining and she was staring at the glimmering she'd blown in an opposite direction.

"Well, shall we get started?"

"You mean we—follow the tiger?"

"No!" Eddie almost screamed. "Are you out of your mind? I didn't like the old stand much once, but I do now. I've changed my mind in the last twenty seconds. It was—*is* much healthier for people like us than an age which includes the scenery inside a cat's stomach."

"Eddie how long ago were saber-toothed tigers?"

"Huh?"

"Please, Eddie, I want to know."

Eddie stared at her. "Well, the Machaerodus, the typical genus of a group of long-tusked extinct cats commonly known as saber-tooths prowled through most of the Oligocene, the Miocene, and the Pliocene."

"In basic English, Eddie."

"Well, we are perhaps a half million years back. Or twenty million, depending on whether that tiger was a Nimravus Machaerodus, or a Hoplophoneus Machareodus, and what Tertiary system age-scale you'd like for breakfast. There's a terrific disagreement among the experts as to how old you'd be if you traveled through any one age just by aging. For instance, Sir Arthur Keith and Elliot Smith disagree—in a small way, of course—about how long ago was the Pliocene. Smith thinks the Pleistocene began a million years ago—Keith a quarter million. Of course they're not geologists, and—"

"I like Mr. Keith's estimate best, Eddie."

"A saber-tooth might find Smith just as appetizing."

Eddie had found that Betty-Jane could sometimes be placated by facetiousness. Even when it was forced and sounded hollow, it could sometimes produce an astonishing change in her. She'd stand back, and laugh at herself, and stop making appalling suggestions.

Sometimes a tiny grain of drollery served up with a straight face could do that for her. It couldn't now.

He knew what was coming before she spoke.

"Eddie, if we followed the tiger, how far back in time would we be?"

"Too far." Eddie scarcely recognized his own voice. It was hoarse with strain, and the effort it cost him to speak at all.

"Eddie, we could still go back to the old stand. The two ovals are only a few yards apart, and the one you like best will be here when we get back. You just now said there was something in you—it's in me too, Eddie. A desire to look beyond and all the way through—until we're too old to drag ourselves about."

"When you can know more, when you're able to, you've just *got* to! Eddie, we're going to follow the tiger."

Eddie never knew how he allowed himself to be persuaded. One minute he was standing with his feet firmly planted on the good late Pliocene earth; the next he was floundering through a bog of fluid time inside a glimmering.

It was awful and he hadn't wanted to and—it was awful. He had to go down on his hands and knees and claw his way out.

Fortunately the ordeal was not of long duration, and only his temples were bursting when he tumbled out into the sunlight and sank in soft mud to his knees beside the cyclopean beast which had preceded him through the glimmering.

The tiger was lying on its back with its short hindpaws buried in its stomach, and the blood which had welled up from the gaping hole in its breast had congealed to a red film covering it.

It looked even huger dead, and Eddie felt a little sick as he stared wildly about him.

He was standing in a bog much thicker than the one inside the glimmering, above him marched a red sandstone cliff, and closer to him than breathing was the girl he'd married.

"B-Jane, why wasn't I . . . the tiger . . . why wasn't I, the first time you blasted?"

"You weren't standing directly in the line of fire," came in a faint whisper. "That tiger was. Just the concussion or something must have blown you through into where we were before we came through into here. Eddie, get a grip on yourself—you're not dead, so why are you trembling?"

Eddie wanted to believe her. But not helping him at all were the moon-faced painted devils. They were squatting on their haunches in a semicircle around the bog, as though hoping the two ugly-looking strangers with *no color at all* on their faces would just *try* and wade out.

Betty-Jane screamed when she saw them, floundering close to Eddie, and tugging frantically at his arm.

"Eddie, Eddie, ohhh—baboons?"

Even as she cried out Betty-Jane found herself wondering wildly how she could have clutched at such a straw. The creatures didn't in the least resemble baboons except that baboons were pigmented just as gaudily in a less refined way.

They were as large as gorillas, barrel-chested, with long dangling arms and patches of red fur on their chests. But despite their hairiness they were clasping rude, flint-tipped wooden spears, and there was something unmistakably human, or humanoid, in their expressions. A petulance tinged with curiosity, a kind of avaricious just-you-wait-and-we'll-know-all-about-you look.

Blue-purple-orange were their faces, the baggy folds of flesh over their jowls giving them a weird otherness of aspect—giving *Eddie* the wild idea that he was staring at the inhabitants of another planet.

Then, suddenly, the truth struck him like a bomb from a rocket gun, shedding dazzlement in all directions.

"Dawn men!" he almost hissed.

"Eddie, they *aren't*. No, no, Eddie—their faces! They look like painted buffoons! It's just not possible—"

Eddie stiffened as though bracing himself to face the full impact of an onrushing nightmare.

"Bright pigmentation occurs pretty high up in the evolutionary scale," he said, breathing hard. "There are blue-cheeked new world monkeys. The theory, of course, is that it has some erotic—"

"Eddie, don't—I can't stand it. The dawn men I've met in museums—"

"Not cogent!" he flung at her, almost savagely. "You're talking about hit-or-miss reconstructions. All museums have to go on are skulls and bone fragments. Skin pigmentation pure guesswork—from the Trinil skull to the Man from Broken Hill. For all we know there may have been big-brained Miocene gibbons which flaunted every color on nature's palette."

Eddie's own color had ebbed entirely. "Great Scott, B-Jane! They're toting *worked* flints—"

"Is that good, Eddie? Does that date them?"

"No. It means they've jumped the gun on the archaeologists!"

"Eddie!" Betty-Jane shrieked. "Look out!"

The warning came too late. From behind the dead saber-tooth four insane blue-orange faces popped. There was a flutter of red-yellow palms, and a flint-tipped spear whizzed through the air to bury itself in Eddie's shoulder.

Eddie stiffened, a look of utter consternation on his face. Then—he flattened himself, gripping Betty-Jane's wrist and dragging her down into the muck beside him.

His shoulders almost flush with the muck, the spear quivering in his flesh, he started to edge toward the glimmering on his hands and knees. The oval was less than a yard from the cliff wall, and protecting him in the opposite direction was a towering wall of dead tiger.

There were guttural whisperings from beyond the crest of that lesser barrier, but no more spears came hurtling toward him. To Betty-Jane, advancing at his side, it seemed incredible—the sheerest, most primitive kind of stupidity.

The dawn men actually waited, hardly making a sound, until Eddie was so close to the oval that his shoulders were etched against the glimmering, and *only then* came swarming down over the belly of the tiger toward him.

Betty-Jane fired without taking aim, swiveling about in the muck, and sloshing the gun upward between her elbows.

The concussion spattered mud in all directions, lifted up the inverted beast, and hurled Eddie forward through a splotch of furiously pinwheeling carnival colors dissolving in a blaze of light.

There were times when Eddie found himself inwardly dynamiting the entire creaky structure. The House which Freud and Jung had built so laboriously, with a dash of paprika from the bad boy down the street. Watson was the bad boy, and he, too, had missed the boat. The behaviorists denied, categorically, that there was such a thing as the unconscious. You thought with your throat muscles.

Good—a telling jab at the great black hinterland which was supposed to lurk somewhere inside a man. He, Eddie, just didn't believe in a subjective hierarchy of infantile repressions. Not in the Freudian sense, he didn't.

No sensible man repressed his inmost thoughts, or was ashamed of them. Yet sensible men had phobias.

An over-simplification?

Bah! the house was creaky from cellar to attic. Watson was right—but horribly wrong. The human infant doesn't just start off with throat muscles. It starts off with *instincts*. Instincts, bundles of them. Inherited instincts. And why not? How could Freud have missed it? Children at play don't secretly want to murder their great-aunts. They want to wriggle their ears, scratch themselves furtively under their armpits. A long infancy, a long learning period—no instincts? Bah, they want to crinkle their coccyxes. No—the plural is coccyges.

Warmth. On his eyelids, on his throbbing throat. A tugging and a whispering.

"Eddie, you're not hurt—just shaken up. I've got it out. The flint's out, Eddie. But you won't have to look at it. It's in the lake. Eddie—this *is paradise!*"

Eddie opened his eyes. He couldn't believe it at first. The vegetation was a deep emerald green, luxuriant, but not lush, the air balmy, the sky flecked with little fleecy clouds, and, as though that were not enough, the sunlight that was warming him through his clothes sparkled on the waters of a jasper lake so still and lovely it brought a catch to his throat.

"Oh, Eddie, Eddie, it was worth the nickel. It was worth it, and I'm glad they attacked us. I'm glad they swarmed down without giving us a chance to stop and think."

"Nickel?" Eddie said slowly.

"You know what I mean. We've silenced the juke box. In the right kind of juke boxes there are blank records. If you want peace for five minutes, you put a nickel in and tunes stop coming out."

"Oh."

"Eddie."

"Yeah, what is it?"

"We'll go back. All the way back to where it *isn't* peaceful. We'll have to because everybody we know is back there, and if we stayed here we'd be running out. But just let me sit here a minute, and drink this in. Then we'll go back."

"Will we? Aren't you forgetting those carnival-faced semi-apes we left squatting around the hole you blew in the other side. They'll be waiting to pay us out. They may even try to come through into here."

Betty-Jane paled. "Eddie!"

"No, I guess they won't. Dawn men feared the unknown, and those glimmerings will be tabu to them. Tabu, in case you don't know, is

the custom of setting aside certain persons or objects as sacred or accursed. Those ovals are objects and will be sacred. But we're persons, and if we step back through and get 'em all steamed up again—"

Abruptly Eddie did an incredible thing. He reached over and pried the gun from his wife's cold clasp.

"B-Jane, what makes all of the rare old coins come out of the bottom slot?"

Betty-Jane was staring at him wide-eyed. "I don't know exactly, Eddie. I just sort of played by ear—the way you did when you figured out where we're not."

"Like this?" Eddie asked, moving his fingers back and forth over the stock.

"Eddie, be careful. You'll—"

Eddie had intended to be careful. But something he had no control over deep in his mind, a racial, hairy-chested something that had a deep instinctive horror of going soft, had its own ideas about paradise.

An earth-shaking concussion moved sideways from Eddie's right knee, lifting up his wife, and hurling her with great violence into a glimmering out of sight.

"Eddie, Eddie, I can't stand any more of this! Neither can you. Take me home, Eddie."

Eddie felt dizzy from having floundered through a dozen glimmerings into ages that were terrifyingly remote. He hadn't intended to fire the gun again and again and again, but every age he'd entered had made him lose his head.

They'd been simple accidents and complex ones like that carnivorous dinosaur. Not a Tyrant King, but a very slender, malign little allosaur with withered red forelimbs and a carrion stench. Hideously it had parried for an opening, hissing and dodging about with its forked tongue darting in and out.

They'd gone through from there to meet a dragon fly with a wing span of eighteen feet, and a calamite fern so high up the bare little pinkish fronds growing out from it had made a dent in the stratosphere.

Twice he'd fired in sheer panic, when they'd been nothing tangible to put them on its menu, and compel them to move on. Once he'd given the gun back to Betty-Jane, and that had been a mistake.

The Ordovician landscape which now stretched in all directions from the tight little lava island they'd found on the far side of the thirtieth glimmering seemed chillingly unreal.

A reddish mist swirled about them, the air was sulphurous and almost unbreathable, and most of the distant volcanoes were mere truncated cones which had blown their tops. Those that hadn't gave off occasional dull rumblings and lava streams that looked—hot.

In utter silence Eddie gathered his wife up in his arms, and swung about.

Going back, there were so many ways they could have ended up as fossils that just passing from glimmering to glimmering turned Eddie's blood to ice. It was mostly

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touch and go, duck and run, with a clashing of teeth too close for comfort in more ages than Eddie could count.

In what was probably the early Eocene there was a distance of fifty yards between the glimmering, and they had to flatten themselves while a herd of tiny, four-toured horses —family Hyracotherium—clattered past. They had to sprint wildly to make it in the late Eocene, when the horses were larger, and could have trampled them into the dust.

There was something in the Oligocene that should have been much further back. With slippery belly-glidings it had thumbed its snout at the paleontologists, and hung around until it was out of date. It wasn't—out of teeth.

Only Paradise hadn't changed, and when they stumbled back into it Betty-Jane gave a little sob and sank down at the edge of the lake without bothering to pluck out the spines an infuriated hedgehog platypus had hurled at her three ovals back.

"Oh, Eddie, oh—this is heavenly! I can't help feeling this age was made especially for us!"

"It's just an age like any other age," Eddie grunted, clearing the huskiness from his throat. "An age of luxuriant vegetation in the middle Miocene. The Miocene was just right for our remote ancestors, so why shouldn't it seem like paradise to us? In the Miocene our kind of folk first started using their hands to develop arboreal dexterity, and an intracranial pressure area of dubious survival value."

Betty-Jane did not reply. She had turned about and was staring with dilating pupils at the light collecting in little pools on the shore of the lake.

It was to her credit that she did not become hysterical, did not even faint. She did feel a little ill, but it was a steely kind of illness such as a huge bronzed amazon of a woman might feel after plodding home to her native village over a mountain of skulls.

When Betty-Jane's awareness wasn't focused on little chunks of reality, when it embraced vast vistas tragic in scope, she could be both strong and great.

"Eddie."

"Yeah, what—"

"You'd better brace yourself, Eddie. I . . . I don't know whether to tell you, or let you find out for yourself. Perhaps it would be less of a shock if you— Go ahead, Eddie, get up and *look*."

It didn't take Eddie long to discover that something he thought of course would be hovering in plain view was nowhere in sight. Of all the ages they'd traveled through the two pursing ovals had stood out like sore thumbs. Now there was only one thumb, and it beckoned toward the age they'd just left.

Under the shattering impact of palpably evident finalities the human brain will often fuse and act upon impulses on a lower level of consciousness. What Eddie did when he turned from the lake shore was so startling it took away Betty-Jane's breath.

He drew her into his arms, and

held on to her tight. Then he kissed her and said, a little huskily: "You are beautiful, B-Jane. I don't think I've ever fully realized just how beautiful."

Smoothing her dark hair back from her temples he made a cameo-like life mask of her face, and stood a little away from her as though admiring his own artistry.

"Eddie," she said.

"Yes."

"I've always thought of you as, well—an escapist. I've found myself wondering whether you really cared much whether I am or not. Right now I'm not looking my best, and you're hurting my ears. Eddie, you're making me nervous —"

"I'm sorry, I—"

"All right, pin my ears back. But try not to forget we're completely trapped. How completely you haven't realized yet. If I'm a reality to you, I'm glad. You're going to need me, and we're going to need each other. Without something very solid to hold on to we'll be babes in a very terrible kind of trap."

"I know," he said.

Betty-Jane seemed to be trying to spoil the mask he'd made of her. She'd removed herself from his embrace and was kneading her cheeks with her knuckles, as though the putty hadn't set right.

"Eddie," she said, suddenly. "In those imaginative science stories you tried to make me like, exactly what happened when people went back into the past. The paradox of time travel, you called it. Just how is time travel a paradox?"

Eddie stared at her before replying.

"Well, if you went back in time you'd change the past. Your mere presence in the past would set a new chain of events in motion. You've heard about the man—he's a bromide now in that kind of story —who goes back and kills his own great-grandfather."

"I haven't, but go on."

"Don't you see? If he killed his grandfather, he'd never be born, so how could he travel back and kill his grandfather?"

"I think I understand."

Eddie nodded. "There's your paradox. The most obvious solution is no solution at all. You assume the existence of numerous might-have-been futures, futures which still exist in a kind of ghostly dimension somewhere, running parallel with the strong, main-line future you're going back has changed. Science-fiction writers call them 'alternative futures.'

"But that just can't be the answer, because the instant you accept it exactly six hundred and twelve new paradoxes arise. The most sagacious writers do *not* accept it."

"What do they do, Eddie?"

"They accept the paradox, not the solution. They just go ahead and write a story with such a depth of imaginative insight that it comes out very beautifully in all respects. Because, if you'll think a moment, everything we do is a paradox, from the instant we're born. The white, cold light of the absolute

turns prismatic the instant it plays over the little spot where we are.

"When we've called that spot reality we think we've nailed it down. But we haven't. We haven't at all. The right nails are very long and twisted, and are in other hands outside the scope of our perceptions. It has though . . . well, for all we know the main building may still be in the blueprint stage. Reality may be just somebody's wrong guess—a lot of overlapping calculations on a crumpled scratch-sheet, tossed aside for something that makes sense."

Betty-Jane was silent a moment. When she met Eddie's eyes again her eyes were shining.

"Eddie, I like that analogy. I like it. A few of those tossed-aside calculations *would* make sense. Why waste them inside a crumpled sheet? Why not lift them out, transfer them to a clean sheet—a new blueprint, Eddie?"

"Huh?"

"A new blueprint for the human race, Eddie, Eddie—or, Eddie, think! If everyone were like you, if everyone were like you from the very beginning those mean, acrobatic-clownish dawn men right up ahead would have no more chance of developing into real human beings than a gorilla would in the twentieth century. When the little, romping, gag-writing Eddie Keenans catch up with them the stage will be set, and they'll be out in the wings."

Eddie was so startled he scarcely noticed Betty-Jane's sudden dropping of her suppositives.

"Eddie, there won't be any wars of aggression; there won't be any slave empires. The Eddie Keenans just aren't *mean* like that. They'll want to dream and sleep, and yawn and turn over and dream again. But they'll work when they have to, when things get really bad they'll work in inspired spurts. Oh, how they'll work to hold and widen their bridgeheads.

"Lovely Utopias will well up from their unconscious minds, great, immortal gags, and they'll

make them stick. The Eddie Keenans are perfectionists. They'll take an artist's joy in making them stick. Nothing they'll ever do will *really* make sense, but it'll be beautiful. Oh, Eddie, it will be beautiful!"

Almost it seemed to Eddie that Betty-Jane was holding the new blueprint out in the sunlight for him to see. She was holding it out by waltzing around on her toes, her arms upraised above the living flame of her body's grace.

The dark-skinned Eurasian dwarf swung in between the big doors and crossed the room in six impetuous strides.

"Sit down, Mogor," a steely voice said. "Sit down, and—let's have it."

The dwarf seated himself with vigor, and then—his confidence ebbed a little. He assumed an aggressively defensive attitude the instant he found himself staring into the Interrogator's cold eyes.

"Move back—where your face won't be in shadows. That's it. Now, you followed instructions."

The dwarf nodded.

"Good. Suppose you tell me exactly what happened in your own words. I should *prefer* not to interrupt you."

The dwarf squirmed under the Interrogator's probing stare. "My instructions were to go back through the stasis my genetic twin-opposite blew in the First Glass Age, and recover the blaster," he said carefully. "But—"

"But . . . pah! It is a synonym for failure."

The dwarf paled, then decided to ignore the interruption. "Unfortunately two Glass Age primitives —a man and a woman—stumbled on the blaster. To be strictly accurate, the man found the blaster, brought it to the woman, and she—blasted with it, blew stasis ovals at half million year intervals for a distance of"—the dwarf hesitated —"possibly a half billion years."

For the barest instant the Interrogator's face was convulsed, as though a high-voltage current had touched off an explosion at the base of his brain. He shut his eyes, and endured—strong emotion, tormenting like a live coal, a thing unutterably shameful in a man whose decisions could not be questioned.

"I didn't see the primitives at all," the giant said quickly. "They were gone when I emerged from the stasis, but I discovered what had happened when I filmed the region over the subatomic displacement auras with a unified field detector. There was an unbroken trail of energy perfect body auras leading back into the past."

"Well?"

"I trailed the primitives back to . . . to—"

The dwarf seemed to be having difficulties with his speech. His flesh had paled, so that his face seemed almost Caucasian-white, and there was stark fear in his eyes, a kind of ingrowing panic which seemed suddenly to overwhelm him, so that he faced the Interrogator

silent-tongued, and with his lips wobbulating.

"Well, well?"

"I followed them beyond . . . where it's pure torment . . . to go. Two ages beyond, I steeled myself, I fought what is agony . . . just to describe. The feeling, you can't, mustn't . . . the ghastliness of not being right with yourself. It's like a tight band—knotted around your mind—slicing deeper and deeper. The knots sink in—become embedded. You've got to get out fast."

The Interrogator's own flesh had paled, but so imperceptibly the dwarf was unaware just how deep an impression his words had made.

"I . . . I concealed an oval as far back as I could stand an agony that kept getting worse. I sprayed the oval over by crouching just inside a stasis they'd blown in an age of luxuriant vegetation far back in the Miocene. Now if they try to return to the First Glass Age they'll never find the stasis. You've got to have an air-film detector to distinguish a sprayed-out stasis from the air around it, and—

"They haven't got one. They're sealed up very far back. That was all I *could* do. I had to get out fast."

The Interrogator's fingers had closed around the compact little energy weapon he'd used to break the back of the dwarf's genetic twin-opposite. But there was something in his nature which made him shrink from inflicting irrevocable injuries on a man who shared a compulsion that was making his brain reel.

"Very well," he said sharply. "That's all—for now."

The dwarf sucked in his breath, started to speak, thought better of it, and swung about on his heels. There was an alarming unsteadiness in his gait as the big doors swung shut behind him.

For an instant the Interrogator stood as though stunned, watching the doors swing shut. A knotted cord, he told himself shakily, a knotted cord tightening and tightening was—a perfect description of the sensation *he* experienced whenever he tried to imagine what the remote past was like.

Why had a revulsion against the remote past been seared into his brain before he'd been conditioned to perform the duties of his high office? Why was the remote past so dangerous it had been blotted from the memory of the dwarf?

Well, well, he could find out easily enough. When he knew he'd no longer fear the remote past, and —he could go back himself, and take care of those two primitives.

His hands were shaking a little when he reseated himself in the examining unit, and vibrated the emergency disk of the COVERALL.

The droning which ensued was abruptly shattered by a coolly efficient voice. "COVERALL. COVERALL speaking. This is Correlator T G 46. What is it, Integrator V 236?"

"I have reason to believe THE

PLAN is endangered by something that has happened in the remote past," the Interrogator said, striving to sound as though he were addressing a subordinate. "I should prefer not to go into details."

"What do you wish to know, 236?"

"I find I can no longer remember what the remote past is like. No, it is worse than that. There is an . . . an uneasiness when I just think about the remote past. I have a feeling that, if I actually went back to, say, the Miocene, and tried to blast a stasis oval the uneasiness would be worse. I say I have a feeling. Of course—

"COVERALL? COVERALL?"

There was no answer.

There was no reason why his palms should feel moist. Yet COVERALL'S silence *was* alarming. A minute ticked by, two—

"Interrogator V 236?" came hoarsely, as though COVERALL were cowering in darknes far off somewhere, willing in its panic to risk a quick look around a dangerous corner, but not daring to raise its voice.

"Yes?"

"This is Correlator T G 49. T G 46 is . . . well, not well. That blotting out of the remote past—it just doesn't make sense."

"No, it doesn't," the Interrogator agreed, his voice rising. "If it had, would I have called you? What right have you to take that tone with me?"

"No right, but—I can't help you. When I think of the remote past it's as though a bar of white-hot

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. . . no, no, worse than that. I *won't* think about it. You hear? *I won't, I won't it's horrible, and you can't make me!! You've no right—"*

The Interrogator groaned, and vibrated COVERALL out.

The implications?

No, no, he'd have to fight that. He'd have to stop picturing the past, all of the past, including the worst three minutes he'd ever lived through, as a . . . a tree.

An enormous spreading tree with all of the upper branches shriveling, dying. A tree already dead, with only the lower branches filled with sap. No, no, no, he'd have to stop.

Just a part of the trunk was alive, and there were little eager new sprouts down there trying to topple the dead upper part of the tree.

The lower part, where the sprouts were, went deep, deep down into the soil, so that the tree was really like a gigantic ice floe nine-tenths submerged. Only the upper part was dead, shriveled, but the upper part included the whole human race, and the sap up there where the human race was could no longer go down, down into the distant roots and interfere.

Something new was coming up down there, pushing its way up—small, twisting new shoots far down insisting on a right to grow and harden into branches and become a new tree with wide, lazy leaves, and a sun-dappled bole. A new—

The Interrogator's thoughts congealed, and something took hold of him, and something whirled him around. Around and around and around, faster and faster, until on the circular top of the examining unit where his hands had rested were two stringy clots of filmy emptiness, and where his brain had pulsed a hollowness impossibly bright.

EPILOGUE

"Junior!" came from the palm-thatched hut in the clearing. "Not tomorrow, Junior. NOW!"

Eddie stopped and stared down at his son, who was contemplating his toes in the sunlight, and squinting up through them at the swollen red disk of the sun.

"Junior, your mother is a very patient woman. You obey her now and then, I suppose?"

"Yeah, sure. Why not, Pop?"

"Well, there's no reason why you shouldn't. I was just wondering."

"Pop, I've gone and figured out a poem for myself. Want to hear it?"

"O. K., Junior—shoot."

"The sun goes down,
And the moon comes up,
But right where I'm sitting
The earth, being round,
Keeps chasing itself like a pup.
H'd'ya like it, Pop?"

"Well, the rhythm and the astronomy ain't . . ain't is basic English, Junior . . . ain't so hot. And you don't talk like that."

"Shucks, Pop, I just talk like I think."

"Yeah, well, it is kind of nice, Junior. You thought that up all by yourself, did you?"

"That's right, Pop."

"It was fun, wasn't it?"

"Yeah, but it was hard too, Pop. It made me sweat."

"You like to sweat, don't you?"

"In a way, Pop, at times—but not every day, Pop."

"Well, that's fine, Junior. That's as it should be. None of the really big towns—Rome, London, New York—were built in a day."

Soon now, soon, he'll be big and strong like his dad, thought the big little girl with the mud caked cheeks and tangled, wild hair. Crouching in the long grass, her skin berry-brown in the red sunlight, her mind went back to the lonely years—before she'd found people like her own mom and dad again, after being so long alone for years and years and years. And that little boy who only came to her shoulder now but would soon be as tall as she.

Years and years, and deep in her mind was the strange dim memory still. An automobile upset in a ditch, and a bright, shining light on the road, and she a very little girl climbing through. Then another light and another light, and she'd kept on crawling through the lights and the woods between, the wild wild woods with the ape creatures, and then – out into here.

And the funny dwarf with the bicycle pump and shiny clothes peering out of the last light, and making the light disappear. And the big ape creatures that had been mom and dad to her until she'd found people just like her real mom and dad had been back when she'd had dolls to undress, and cornflakes for breakfast, and Perkins to talk to, and mom and dad playing bridge away off somewhere, and then coming home with more dolls and upstairs maids and bathtubs, and she'd had to wash behind her ears.

"Junior! Mary Ann!"

Oh, those brats, thought Betty-Jane, standing in the door of the hut in the clearing. Eddie's, and a green-eyed little minx that wasn't at all, even though she'd managed somehow to come running in out of the rain, trembling and afraid, and straight into her heart. A would-be glamour girl, and with Junior not yet forewarned. Six years difference in their ages too, and she setting her cap for him as though she wasn't just a silly little thing with wild twigs snagging up her hair.

THE END.

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Renaissance

(*Continued from page 98*)

many of you are there this time?"

"Three. This time—? You mean there have been others?" Ketan asked.

"Many others, but come, my father will be waiting for you."

"It isn't real. It can't be," John Edwards whispered hoarsely as the girl turned and they moved to follow her. He had not even noticed her resemblance to the golden image in his first mystification.

Simultaneously, the two Illegitimates turned to Ketan. "What does it mean?" William Douglas asked. "She isn't real, is she? This must be more of the visions that you told us about, and it's affecting us all. This rock has been sealed for over a thousand years. No one could be alive in it. Can you understand what she says? I can't get more than about a third of it."

"It's rather an old form of Kronweldian. I don't know any more about the explanation of all this than you do. I only know that whatever it is, is right. This is what I came to find."

They followed in silence behind the girl whose walk seemed to be more of a graceful, dancing motion. They passed through the garden beside the fountains. They noticed fish swimming lazily. Strange, golden-hued fish.

The illusion of distance was perfect—or was it illusion? As far as they could see there were gardens with flowers and trees spreading over the low hills in the distance. A flock of birds passed high over them and in the distance a rain-shower spotted the sky.

The garden path took them shortly into a wooded glen and they began an abrupt ascent of a comparatively high hill. There was a strange sense of fantastic unreality about that hill. Even more than about the rest of their surroundings.

Then they found what caused it. There seemed to be no top to the hill. It just kept going and there was no visible pathway ahead of them, yet the girl did not hesitate.

And then they reached the top.

The hill and the garden and the sky vanished and they strode out upon the marble floor of a high hallway down which the girl was leading them. Her shoes clicked upon the floor in multiple echoes that sounded like the beating of faraway fairy drums. Her grace was deceptive in covering the swiftness of her notion and they had to hurry to keep up with her.

Their capacity for astonishment had long since passed and they did not wonder at the sudden transformation from the garden to the marble way.

They turned a corner abruptly and came to a high ceilinged room finished luxuriously in panels of blood-brown mahogany. In the center of the room was a table at which candles burned. Upon it was a sumptuous feast.

It was not until a moment later that they noticed the man seated at the table. He rose slowly as they

entered and the girl led them towards the man.

"This is my father, Richard Simons," she said. "These men are Ketan, William Douglas, and—"

"John Edwards," said Ketan, indicating the man who had come in last.

"I'm happy to know you, gentlemen," said Richard Simons. "It has indeed been a long time that we have waited for you. Will you sit down and refresh yourselves, and then we can talk?"

None of the food was recognizable to any of them. The two Illegitimates were dubious about it, but Ketan knew that it was merely some unknown varieties of synthetic preparations, such as were known on Kronweld. He found the dishes very satisfying.

But during the meal, neither the man nor the girl would discuss the things that were burning in the minds of the three men. There was no word of explanation or comment.

They chatted easily of inconsequential things, however. Simons told them about the garden below or *out*, or wherever it was. He told about the plants that he had gathered from all the countries of the world to put in it. Then he spoke in pride of the room in which they sat, of the mahogany panels which he prized.

There was yet a strangeness about the two that Ketan could not name, an elusive quality as if the man and the girl were actually unaware of them, yet that did not seem to be it, either. They looked directly into the men's faces and smiled and laughed as they chatted.

In fact, they monopolized most of the conversation, hardly allowing the three men to say a word. It was as if all the unspoken thoughts of centuries of imprisonment within the pinnacle were pouring out.

But Ketan could not help bursting out with questions. Some were answered and some—

That was it. Every now and then in their conversation they completely ignored statements or questions put by the men. It seemed as if they had not heard or chose not to recognize what was said to them. Ketan wondered if they were partially deaf.

After the meal, Richard Simons passed around cigars which Ketan did not recognize, but the two Illegitimates accepted with pleasure. Then he led them out into another richly furnished room which was a library.

The high walls were stacked to the ceilings with thousands of volumes. The expanse of the shelves was broken by several excellent paintings. The deep gray floor coverings muffled all sounds and it seemed as if a whisper were sufficient for conversation in that room.

They sat in deep, comfortable chairs and Richard Simons blew a ring of smoke towards the ceiling.

"You want explanations, of course," he said. "You want to know who we are, and what all this means. I shall answer all your

questions in an orderly manner.

"First, let me tell you that you will find it hard to believe many of the things which you shall learn here, but believe that what we say is true. We wish that most of it weren't.

"You came because we wished you to come. You could not have done otherwise. When you passed through the Selector an impulse was planted in your mind which carried you from that moment to this. All your life has been lived with the objective in mind of your coming to this point. I hope it has not caused you a great deal of discomfort, but I had to be sure you would come."

He was speaking of Ketan, of course, but his glance seemed to encompass the two Illegitimates as well.

So that was the source of the visions, Ketan thought. And that was the origin of the driving force that had impelled and guided him here. But why?

Apparently their host was ready to answer this. "It is difficult to know where to begin," he said. "You must know, first of all, that this is your home. You are of Earth. Crown World has been only a temporary setting for you and now you are about to come home."

Crown World, Ketan thought. That was the oldest of all forms by which Kronweld was known. He wondered why the man used it, or how he knew of it.

"You should know a good deal of the past history of Earth in order to understand the purpose of all of this. I am not going to tell you that history. You will find the details of it in these books that surround us, during the next few days.

"To sketch a background, however, you should know that there was a time when science and civilization were much greater than they are now. They were destroyed by a great war that encompassed the Earth in a series of destructions that extended over a hundred years. It was really all one war, but it was broken up by truces and armistices which the people used to rearm and prepare for greater and more destructive wars that followed.

"Because of the high state of the science of that day, these wars were increasingly destructive, until such a cumulative destroying power arose that it became impossible for civilization to continue in the face of it. And civilization did not continue.

"There came, in time, the wiping out of the capacity for technological production. It was not a single climactic event, of course, but as technical facilities broke down one after another, they were replaced with more and more primitive conditions until an almost stone-age culture followed. Simultaneously, this meant the end of world war, because facilities for transportation and communication were gone.

"A generation grew up fighting with knives and axes and communicating by smoke signals and runners. And, in the end, they forgot what they were fighting for and

stopped because all their energies went into the killing of food.

"You will perhaps find these conditions unbelievable, but I assure you they existed for many decades.

"The upswing that followed came rapidly because there were still technicians of a sort in existence, and the rudiments of science could be salvaged out of the ruins of the libraries and laboratories. Fragment by fragment, portions of it came back. But something had happened to the people. They didn't want their science back. A wave of feeling seemed to sweep around the world into all lands almost simultaneously. It became a dogma, a religion, and science became the scapegoat for which the inhabitants who were left after wars blamed their fate. They blamed science and technique and they called their new cult *antimaterialism*.

"It was a fantastic, fanatic thing, but it gripped the Earth. In order to create communication systems again, they were forced into the contradictory position of adopting certain of the hated techniques, but they justified it by some sort of sanctification hokum. What they actually did, then and there, was prove that no society of any complexity and culture whatever can develop without a parallel science or technique to service it.

"But, in the meantime, it was impossible for those of us who believed in the restoration of technique to proclaim our views. Hundreds of us were killed for it and the rest driven into hiding."

Ketan leaned forward. *"Us?* Did you take part in those events?"

Their strange host nodded. "Do not be surprised at that. I shall explain shortly."

"We fought for years," he continued, "for the restoration of science. But we knew at last that it was impossible in that generation. There was only one thing to do, and that was put our knowledge and science in storage and prepare for the future. That is what we did."

He leaned back and gazed up at the high ceiling while drawing a final gust from the stub of his cigar.

"We came here and built all this." He waved a hand to include the pinnacle and all its contents. That was more than a thousand years ago. A dozen years after we completed our task, all of us were dead."

His eyes were watching the three men with amusement. The two Illegitimates leaned forward with a start, but incapable of uttering a sound.

Ketan did not move. He had been waiting for that. Back in the dining room he had sensed the unreality of the pair, without daring to voice it. But if he gave no outward sign of reaction to the man's statement, there was a deeper, more poignant sense of loss.

It swept over him like a great wave of some immeasurably lonely sound. It swelled through the great chamber of the library and echoed and reverberated out through the marble halls and vast chambers he

sensed but had not seen.

Dead was the one word that went with that lonely melody. Dead, this pinnacle and all that it holds. Dead, this great unknown Seeker—and the First Woman.

Ketan looked into her eyes. There were depths of sadness there that spoke wordlessly to him, but then her lips moved, and he could hardly hear what she said.

"Yes, dead. I wish I might know you," she said. "I wonder what you are like as you sit here beside us—a thousand years from now, when we are only lights and shadows and recorded sounds. Are you primitive savages who have come to rend all that we have tried to save and plunge the world forever into night? Perhaps not, because we prepared protection against such.

"Or are you sensitive creatures of intellect to whom we have given survival and of whom we could be proud if we could see you. We shall never know, but we died hoping."

There was moistness in her eyes as she looked away.

All the poignancy and hope in her heart communicated itself to Ketan. It was like a vision of the dead sitting beside her, watching her movements, and listening to her voice. Every day of his life he had passed the thousand *tara* old image of her before the Temple of Birth. Now to see her alive—even if only in illusion—was like waking in the midst of a dream and finding it real.

He imagined the fearful task she undertook when she went alone to Kronweld with the first of those selected by her father's machine to begin life in that world. How lonely the years must have been while she watched the little ones grow. When they were old they must have built the image from a duplicate of the key to the pinnacle which she had taken with her.

But the one question not yet answered was the sterility of Kronweld. Why had life never reproduced itself there?

Richard Simons began speaking again. "It is obvious what was necessary," he said. "Those of us who were left—about five hundred—gathered a sample of every scrap of technical and scientific knowledge we could find. I started with the job long before she was born." He nodded towards the girl. "But she grew up to help finish the job. We located this pinnacle in what looked like the safest spot on Earth. The perpetual winds, which our geologists assured us would not materially affect the rock in five thousand years, and which our meteorologists said would be continuous until the peculiar formation that makes them possible disappeared, form a natural barrier. But it is one that can be easily penetrated if there is a good enough reason for doing so.

"A good many of us lived here until our numbers were gradually depleted by death. We would have gone into Kronweld to escape as we planned for you to escape, but there was too much undone work, so we remained. Only Dorien went through to end her life in Crown

World, among the first of those we sent through.

"This half of our problem was only a half. The remainder is for you to solve, and if you have not solved it, or know that you cannot do so, then you must go back to Crown World and never return. In another thousand years another will follow in your steps, but that is my charge to you: Solve the second problem or go back!"

The man's eyes took on a strange, steely glint that somehow carried a nameless threat, a conviction that he could yet reach out across the millennium and enforce any demands he might make.

"And that problem is—?"

"The problem is the oldest problem of society. How can man be governed?

"Here is what we did for you: We appealed to the war revulsion of the people and constructed a series of great machines which we told them would forever eliminate such great criminals as had led the world to destruction in times past. We pointed out what changes there would have been in the world if such as Alexander, Nero, Attila, Hitler, Michoven, Drurila and the hosts like them could have been examined at birth and their criminal tendencies discovered and destroyed

without giving them a chance at life.

"With their usual facility for turning their faces the other way when a good machine contrary to their teachings appeared, the antimaterialists accepted our Selector, as we called it, and we installed it in numerous locations throughout the world. All the minor instruments were controlled by the large central machine.

"We did incorporate circuits which identified and destroyed potential criminal leaders, but we included other circuits, too. These latter selected and rejected the scientific brains, the men and women who could have led the world to new heights of achievement in proper circumstances, but who would have lived and died in a world of frustration and futility among the antimaterialists if they had remained on Earth. You were among those.

"This isolation was made possible by the discovery of one of our group that there exist parallel worlds in which the oscillation rates of the component particles making up their atoms differ. You won't understand that, neither do I. There's probably only one man in the world who ever did understand it, and now he's dead. His records are here, though, if you want them.

"What he did discover was that perfectly 'normal' matter can be changed with respect to the frequencies of its component oscillations and be coexistent in space with other matter of differing frequencies.

"It all adds up to the fact that we found a hundred thousand other worlds lying side by side, so to speak, with our own. Some of them were terrible, ghastly worlds, with forms of life that would haunt a man all his days. Only a dozen or so were fit for human life, and the best of these, which was none too good, we called Crown World and sent our selected, chosen intellects there. How well it worked you know better than I.

"It had always been a theory of mine that if a hundred of the best scientific minds of the world could be isolated on an island away from all influence of the ignorant and the politicians that they would cover a thousand years of scientific progress in a tenth of the normal, historical time.

"I believe that now, a thousand years or so later, such a society of scientists has evolved and progressed farther than the wildest dreams of my own day. I gave you nothing to start with. I sent none, even, of the basic sciences of Earth for you to build upon. I wanted you to build both your own foundation and superstructure. All that you have done is yours and yours alone.

"Now, the second problem is for you to come back and govern the world which is your rightful home —if you can. If you are prepared, and if it is ready, as I believe it should be, take it over, rule it, make it the paradise that it might have been long ago except for the greed of the ignorant and the warriors and the politicians. Rule as you see

fit, but if you are not fully prepared to rule wisely, go back and wait another thousand years. That is your commission.

"And that is all for tonight. Dorien will lead you to your rooms and you may rest. Think over what I have said. Tomorrow, we will talk again."

A thousand questions flooded Ketan's mind, but the girl, Dorien, had already arisen and was leading the way out. The figure of the man was silent and motionless as if life had been suddenly turned off within it.

They came out of the library into another hallway, thick-rugged and dimly lighted by a luminescent ceiling. Dorien led them to three doors adjacent to one another and bade them good night.

"I think you will find everything you need," she said. "You will find a message left there for you by the first who came back. Read it carefully."

The two Illegitimates had not understood more than a third of the words that were spoken. They understood only vaguely the import of the story of Richard Simons. As soon as the girl was gone, they came into Ketan's room.

"What's it all about?" said William Douglas. "We didn't get very much of it. Could you understand it all?"

Ketan briefly filled in the gaps they had missed. As he went along, the eyes of the Illegitimates glowed. They were silent a moment, then William Douglas spoke.

"This is the thing we have waited a lifetime for. You will come back —all of you from Kronweld and take over from the Statists?"

Ketan nodded. "Apparently it is our destiny. Most certainly we shall come back to Earth, to the home that was originally ours. It is much more desirable than Earth.

"But there are many problems yet to clear up. Many I think that they didn't plan for. Returning to our rightful place may not be as simple as it sounds."

"Of course not. The Statists will fight, but a hundred thousand Illegitimates all over the world will fight with you. Just give us leadership, bring us the weapons we've tried to build and can't. You can lead the world back to the Utopia that these ancient scientists visioned. It's the dream the Illegitimates have dreamed for three generations, but they never actually believed it would be possible."

"We'll come back," said Ketan with finality, "but first I must learn such a simple thing as how to get back to Kronweld."

"We'll help you," said William Douglas. "I can show you the way, now."

As he lay in darkness, Ketan thought of Dorien's statement that many had been there before them. That thought confused and worried him.

If there had been others who had been charged with the same commission, what had become of them? Then he remembered the message the girl had said was left by the first one who came through. He

got out of bed and snapped on the lights. The folder was lying on a table near the bed. He opened it up.

"You know now the mission of the inhabitants of the world of Kronweld," it read. "Because you are one of those with the power and imagination sufficient for the task ahead, you were chosen by the great Seekers of old to come through. They planned well for us and their heritage of knowledge will be a great asset, but there were a thousand problems that they did not anticipate.

"The greatest of these is the rise of such a group as the Statists. They did not plan any way to take the governing power away from such, therefore, we cannot proceed as we would like.

"You may or may not know who the Statists are by now. They are a group of tyrannical rulers who hold power by reason of the fact that they long ago learned of the existence of Kronweld. Whether by accident or betrayal, I do not know. The Statists themselves apparently do not know. But they were clever enough to infiltrate into the world of Kronweld without revealing themselves as strangers, and, through the medium of the Temple of Birth, they have fed upon our Seeking for well over two hundred years.

"They are not like us, however. They are utterly ignorant of the basic principles of our science. As you have learned, the inhabitants of Earth have been skimmed, so to speak, of the scientific brains that have been born there during the last thousand years or more. This means that those left upon Earth have existed in an incredibly dark and ignorant era. Those of the Statists who have stolen and used our work are inept and almost stupid in the technique necessary to use our discoveries. Their only salvation has been the fact that none of their own have been submitted to the Selector and, as a result, any technical traits remaining among them—which were few enough after centuries of skimming—are now preserved. A number of good technicians exist among the Statists now.

"A crisis has long been approaching because they fear Kronweld. Somehow there has come among them a legend of the pinnacle. They have searched long and in vain for it and they believe that if Kronweld should ever learn of it and come through, the Statists would be wiped out, which is, of course, true.

"The problem is not simple. There are many of us who have come through, now. You will learn who and where we are in good time. Come to the city, Danfer, and you will meet me there and obtain further instruction and information.

"I am Igon."

Ketan read the last line and put the folder down before the significance of that name thundered into his consciousness.

Igon!

The legendary Seeker of Kronweld who had first broken through

into Fire Land and Dark Land and had nearly lost his life and been declassed for it! Igon—so fantastic, so mythical that many doubted that he had ever existed. It was at least eighty *tara* since he had disappeared from Kronweld.

It was impossible that he could still be alive. The paper of the message was *old*. But even if Igon were dead, what had become of his plans and all the others who had come through to conquer the Statists and reclaim Earth? Where were they?

XIX.

He tossed in restlessness through the night. His mind would not relinquish the multitude of interlocking problems.

He tried to go over what he knew in an orderly manner. Leader Hoult and Teacher Daran obviously had been Statists who had taken Kronweld's Seeking back to Earth for the Statist group. They had used the superstition surrounding the Temple of Birth as a cloak for their work.

And that, he thought, was about all he knew for certain. It left him uncertain as to where Matra had stood. Apparently she was opposed to the Statists, but had she been one of them to begin with if the Temple were the channel for returning the stolen knowledge? And what of Anetel? She must be a Statist or at least aligned with them, he decided.

That left Elta. It was impossible to come to a decision regarding her. He didn't want to believe that Matra's original accusations were true, but there seemed no other explanation. The only favorable factor was Matra's strange reversal of opinion just before she died. And Elta's insane attack upon Anetel.

These thoughts swirled in his mind until dawn broke with a burst of light through the window by his bed. A dawn as dreamy and unreal as all the other surroundings of the pinnacle interior. He rose more weary than when he went to bed, and looked about the room in close inspection for the first time. He saw what appeared to be bathing facilities and approached to find out how they worked.

He discovered the shower controls after a moment and stepped under the invigorating stream. It was only water, he found, but it was good even if not so refreshing as the chemical sprays he was accustomed to.

He found an assortment of clothing in a closet, and debated using some of it that approached his fit, but he decided to redress in the durable skin garments of the Illegitimates.

When he was through, the door opened and Richard Simons entered the room.

"Good morning," he said. "I hope you slept well."

"Hardly. There have been too many surprises the last few days."

"I can understand that. But surprises are not yet at an end. We have many things to show you."

It was strange, talking thus, hold-

ing conversation with a man dead a thousand *tara*. Ketan could not shake off the eeriness of it. Rather, it was growing on him.

"The thing I am most concerned with is getting back to Elta," he said.

Again there was that expression of utter blankness and incomprehension on the man's face. Obviously, Elta was not a name that would actuate any of the multitude of recorded responses. While he stood there, Ketan moved forward and passed his hand clear through the man's midriff.

"Yes," Richard Simons smiled ruefully. "I am nothing but light and shadow and sound—and certain other radiant effects that make it possible to pick up things and exert pressure. But it is best this way, is it not? I think you would rather have me conduct you about in this manner than listen to only the sound of my voice in these empty halls."

"Much rather," said Ketan.

He started out the doorway. "Do not think of me as one dead. Though my body disintegrated a millennium ago, I have guided you here. I have governed your life to the extent of leading you to a great destiny. I cannot be dead if I am capable of that, can I?"

"No. . . no, you can't." And Ketan suddenly knew that what the man said was true. This hall, this pinnacle, its precious storage of the science of his home world—none of it was dead. It was the most vitally living creation in all this dim and dying world. It was a spark of life that would infuse itself into Kronweld, and unite the two worlds in a glory of existence that no man had ever dared dream of. No man is ever dead, thought Ketan, who can still guide the lives of others through his works.

They were joined by the two Illegitimates who looked as if they had rested much better than had Ketan. There was a reason why they should. They saw ahead the end of all their problems and the fulfillment of the hopes of their nation. Ketan saw only the beginning of his.

In a moment they were joined by Dorien who was dressed this morning in a trim, white garb that set off her ebon, flowing hair with intense contrast.

"Where are you taking them?" she asked her father.

"I thought we'd go down to the laboratory this morning. They must see our collection there."

"Our wax museum—" Dorien laughed.

"Dorien, please—"

It was evident that the girl had an easy familiarity with their work which was not shared by Richard Simons. He was intensely serious, as Ketan knew he well might be, over the importance of what they were doing. But Ketan was glad that Dorien was able to laugh. It made them all feel better.

They wound through passages and down moving stairways, until Ketan made no attempt to keep track of where they were going. He ceased all wonder about the

relative size of the interior and exterior of the pinnacle.

They came at last upon a balcony that overlooked an enormous chamber below. There must have been two thousand men at least, working over laboratory tables and masses of equipment built up on the floor. Some few were in groups, but most of them seemed to be working alone and in silence except for the click of glassware as equipment was set up or dismantled.

"What are they doing?" Ketan exclaimed. "I thought there was no one here, but yourselves."

Richard Simons remained silent for a moment. "These men are like us—Dorien and I. But they are no more dead than we, for their work has influenced a million million lives—and will influence yours and billions more. These are the scientists of Earth, the greatest of them, who discovered most of the knowledge that man had mastered up to the time of the building of the repository here in the pinnacle. Come down and meet some of them."

There was a strange appearance about the group of workers in the room. They were dressed in a variety of garbs that lent them all a weird incongruity.

Richard Simons led the way towards a corner where a white-haired old man, clad in a simple white robe, sat before a rough table scrawling on a rough, brownish substance.

"His name is Archimedes," said Richard Simons. "He is trying to improve an ontager for the battle of Syracuse."

The old man looked up at the sound of their voices. There was a dreamy look in his eyes, mingled with the worry and fear there.

"If I could only stand a hundred thousand men in one place, what power I would have," he murmured.

"Why men?" Ketan burst out. "You could use—"

Richard Simons touched Ketan's arm gently. "He wouldn't understand. He is Archimedes as he was. Nothing but the power of men and animals and heat and falling objects was known in his day. Come over to a later era. This man's name is Michael Faraday. He discovered the principle of electric current generation."

A thin-faced man of medium build looked up as they approached. He was in shirt sleeves and knee-length pants. His neatly waved mat of white hair looked somehow artificial to Ketan.

"Hello, Richard," he said.

"Hello, Michael. You look a bit annoyed this morning."

"Annoyed! I gave a lecture last night and some fool woman came up after the demonstration and asked what this was good for." He pointed towards a disk fitted with a crank that would spin it between the tips of a horn-shaped piece of metal.

Michael Faraday chuckled. "Can you guess what I told her? I said, 'Madam, can you tell me what a new born baby is good for?' She left me without another word."

They chuckled with him and turned away.

"I want you to know them," said Richard Simons. "Come here often. Talk to all of them. They can understand you because their language has been adjusted to yours, though originally they spoke a hundred different ones.

"I want you to find out what they are doing, and why. Here are the men who tried to raise a world up to the stars, and failed because of the ignorance and stupidity that blocked their way. I want you to learn from them, because you must go the same path and succeed where they failed.

"They will always be here, working over and over upon the things that the world remembered them for, and for which they still live. There's Edison over there, trying to hear his phonograph with a slightly deaf ear. Sometimes he turns it on so loud that it annoys Einstein across the table. Get to know them all. They're my friends, and the friends of every man."

Up on the balcony again, Ketan looked down upon the assemblage of figures that represented the great Seekers of a world. He knew that the scientists who had built this replica and created these figures had not done so for idle show. Here was something of paramount importance for the Seekers of Kronweld who were yet to come.

They would meet and know the Seekers of Earth as if they had worked with them, and they would learn their dreams and ambitions and gain strength to carry them out.

"Now the library," said Richard Simons.

They passed through other corridors and came to a long, narrow room with a table that would seat over a hundred men. Upon the table, before each seat was a small view plate and a keyboard of colored and numbered buttons.

"Behind these walls," said Richard Simons, "are the photographic records of a hundred million books. This was our greatest task. We spent the majority of our time, secretly roaming the world, salvaging the books that men had written. Because there were so many copies of each, they could not all be destroyed even by the tremendous bombing and burning of the wars. We preserved them on film, and then built this library.

"A manual index indicates to you what is available on any given subject. Then, with the indicated index number, you order that film automatically fitted into your viewing machine. Thus, you may sit in one of these positions here and read any of the one hundred million volumes with only a few seconds required to change from one to another.

"We planned that this room should some day be filled with scientists from Crown World day and night, learning the heritage of their homeland."

Ketan sat down at a position and experimentally pushed a series of buttons. In a moment the screen

lighted with the image of a page. He found it difficult to read.

That vastness of the accumulated writings awed him. More than one man's lifetime would be required to investigate even a fraction of what was stored there.

He was about to speak, but Richard Simons went on, "There is one other chamber that you must see this morning, our museum."

It was adjacent to the library. Like the library it was so vast in extent that it would not allow a vision of details. There were samples of hoarded machines and artifacts representing every art of ancient man. Machines of transportation, communication, manufacture —the scientists had gathered them out of the ruins of a world for a testimony of the once great heights to which man had risen.

"It is too much!" exclaimed Ketan. "I have seen more than enough. There is no purpose in my viewing more of the remains of my home world. Let me go back to Kronweld, and bring Kronweld here to these things."

"Then follow the way that Igon has prepared," said Richard Simons. "Do not fail!"

Before he left, Ketan went back to the first library and made a selection of volumes to take to Kronweld as evidence of the story he would have to tell.

Like emerging from paradise into hell, they went out into the desert again, where the sky was smoky with sand and the sun blurred by it.

They found their horses hobbled and tethered. They were protected by heavy blanketing of some unknown texture, and they had been watered and fed. Ketan and the Illegitimates did not stop to ponder the miracle. It was the final manifestation of the pinnacle.

They replaced the tiny golden image in the recess and balanced it as before. The huge stone plug that had fallen away slowly swung down and blocked the opening once more. They shoveled the sand back over the projecting pyramid.

The sky was hot and burning through the shield of sand clouds. They covered their faces with moistened rags and turned back towards the gap between the mesas. Unerringly, Ketan's direction sense in relation to the pinnacle led them back along the way they had come. Because they had started very late, it was near morning when they reached the canyon gap that led out of the drifting sands into the mildness of that other desert.

"We may as well stop and rest for the day," John Edwards suggested. "If we travel at night, it will be cooler. It looks like it's a furnace out there now."

William Douglas and Ketan agreed. They felt the need of rest, and Ketan, in spite of the urgency of his mission, wanted time to think.

It was William Douglas who was the most impatient. "What do you intend to do next, Ketan? What did those writings say?"

They were sitting by the campfire eating their evening meal. "Those instructions were written

by Igon who disappeared from Kronweld over ninety years ago. Whatever validity they had then is surely gone, now. Igon is undoubtedly dead. If there is an organization of those who have come from Kronweld to the pinnacle, I am supposed to contact them, but I wonder if they haven't been discovered by the Statists and defeated long ago. Surely there would have been some evidence of their action by now. Igon would have carried a plan into effect during his lifetime if it were physically possible."

"But the instructions wouldn't have remained in the pinnacle if they were no longer effective."

"There is no reason why they should have been removed. After all, everything there is only mechanical in operation. Apparently Igon went through there and managed to make some progress towards a plan. Then he went back to the pinnacle and left these instructions, altering the controls on the images of Richard Simons and his daughter so that they would bring the instructions to the attention of any who came after him. He died and his plan failed, and the instructions merely remained."

William Douglas shook his head.

"I hardly think it is as simple as that. Those images were set up too well. If they could respond to the unexpected questions and statements of our conversation as they did, surely they would have better control over circumstances surrounding the instructions. What did they tell you to do?"

"I am to go to the city of Danfer where the central Selector is located. There I am to meet Igon—which is obviously impossible. If he were alive, I would receive further instruction there."

"Perhaps he is alive in the same sense that Richard Simons is."

"I've thought of that, but if he is nothing but a walking image of light and sound, he can't be an effective force in overthrowing the Statists."

"Maybe that's your job."

"I don't know. If so, what happened to the others who came through?"

"At any event, you are going?"

"I am going back to Kronweld," said Ketan. "That is the first concern I have now. I am going to find Elta if she is alive. If she is not, I'll spend my life avenging her death if I have to destroy Kronweld and Earth to do it."

"I will go with you to Danfer then. That is the only way back to Kronweld. Perhaps you will find something more of this Igon, there. It is fortunate that you received a brand as you went through the Selector. They won't question you on that count, anyway."

Ketan glanced down at the purple mark upon his arm, about which he had so often wondered, and nodded.

During that night, while they rode slowly across the desert, and the next night when they went back into the hills, Ketan was assailed by a sense of futility as if all he could do now were in a lost cause.

He traced the feeling to the episode in the pinnacle, to the discovery that the great and legendary Igon had passed that way at least eighty *tara* before—and obviously failed to carry out the mission assigned to him. If Igon had failed, how could Ketan hope to succeed in that task?

One slight posibility that offered hope was that Igon had seen the impossibility of accomplishing the task and had not tried, but waited for another to be assigned to it at a more opportune time. That seemed unreasonable, however, in view of the instructions he had left. Possibly they had tried and failed. Possibly a great number had come through the pinnacle and had produced a mighty effort to overthrow the Statists and reclaim Earth—and failed.

These were only more unanswered and perhaps unanswerable questions to be added to the ones already piled upon him. He searched in his mind and in his heart for a course of action to follow.

When he placed the question directly to himself, devoid of all emotional response, it became clear that his way was as plainly marked before him now as it had been from

Kronweld to the pinnacle. He wondered if some influence still were upon him, guiding him.

He would go first to the forest villages of the Illegitimates to rest and prepare for the journey to Danfer and to enlist the aid of the Illegitimates. He had to have them as allies. He had to have their faith and independence and devotion to freedom to mix with the passivity and Seeking of Kronweld.

He would go then to Danfer, find a way to go through to Kronweld. He would find Elta, but regardless of her fate, he would carry out his original intention of exposing and destroying the Temple of Birth. He would show it for what it was: Merely a gateway back to the world from which they had come.

Kronweld would be convinced then. They could not cry down the evidence he had to show them. He was sure of that. With the aid of the Unregistereds, he would be sure of convincing Kronweld.

That was the course, then. He would lead his people back to Earth. At the pinnacle and in the villages of the Illegitimates, they would learn of their heritage. They would plan together, not just he alone, how they could overthrow the Statists.

It did not seem so difficult. Once he had outlined the course in his mind, it seemed certain of fulfillment and a new, uplifting elation filled him.

But it did not last for long. If the problem were that easy, why had Igon failed?

XX.

They traveled part of that day so that they came into the village about midnight.

Ordinarily the village would have been dark, with only the immobile shapes of sentries indistinguishable from the black shadows of the forest, but unaccountably there were hundreds of pin points of lights and an all encompassing blob of light that marked the location of the village now.

An exclamation burst from the throat of William Douglas. "The Statists—raiding again!"

He spurred his horse. The tired animal leaped into a long stride that carried its body closer to the Earth in a hurtling shadow through the trees. Almost before Ketan realized it, William Dougles was out of sight around a bend, then he dug his heels inexpertly into the sides of his own horse.

He clung to the animal's back as it picked up speed and rocked him crazily with its flight along the trail. Behind him he heard John Edwards shouting at him, but he couldn't hear the words in the wind and the sound of horses' hoofs.

It was only when the second Illegitimate forced him over to one side and sped past that he knew John Edwards wanted him to get out of the way.

Despite his slower pace he could now see William Douglas' silhouette on the trail far ahead and spurred his animal faster.

He was still faraway when he saw that whatever the burning was,

the village itself was not on fire. Distinctly, the outlines of the crude houses stood out against the firelight.

And now, as he came closer, he heard a sound upon the air. It was a sound produced by human throats, but that was all. It was not a sound that could be produced by human beings. It was a wild, animal sound that chilled him like the smell of dead or the sight of evil. It was a sound made under the direction of torn, demented minds that had lost all claim to humanity.

The villagers were making that sound. Fighting down his revulsion at the screaming fury that poured over him, he drove the horse onward.

He came through the outer edge of the village and rode down a crooked street. Then, before him, he beheld the mob of howling Illegitimates. They were gathered in the central square of the village about a flaming pile, whose light was surging up swiftly.

"What—?" he began. Then he saw William Douglas beside him.

"Come away," the Illegitimate leader said softly. "You shouldn't see this."

"Shouldn't see what? What are they doing?"

But before he could answer, Ketan saw the object of fury that was beginning to be bathed in the rising flames. There was a stake in the center of them and a human being was bound to it.

A choked cry burst from Ketan's throat. "William Douglas! Stop them! Do you see what they are doing?"

"It's a Statist they captured today. A spy someone says. You couldn't stop them. They'd tear you to pieces and burn you, too. I couldn't stop them, they'd kill me, first."

Sickened, Ketan turned once again to look at the pyre. Then he saw the head of the bound figure raise and a cry came from its throat. He stared, petrified, and the world stopped.

It was Elta.

Ketan did not reason his next actions. There was no room for reasoning or thought within his mind. Instinct directed him to seize the coil of rope that hung on William Douglas' saddle beside him. With a wild, animal cry he reined the horse up and slashed at its flanks with the coil of rope.

The rearmost of the mob turned —just in time for the hoofs of the horse to crash into their faces. The horse leaped into the throng, with Ketan lashing savagely at its sides.

The mob parted in terror before his onslaught for an instant. But only for an instant. The inhuman cries he had heard before were turned upon him now and hands reached up to drag him down. He kicked out and felt bone crush beneath his feet. From side to side he slashed wth the coiled rope that was now bloody where it had laid faces bare to the bone.

There was nothing remaining there of Ketan, the Seeker from Kronweld. There was only a sav-

age, fear demented animal upon the horse's back. Ketan's cries matched and exceeded the Illegitimate's in animalness and his voice was heard above theirs.

Slowly, they began to fall back in sheer awe at the fury riding in their midst.

From his own pack, Ketan reached down to withdraw a short knife. He was nearly to the fire, now. A few more steps and he could cut the bonds from Elta.

As he leaned over to reach in the pouch, the horse sagged under the sudden weight of one of the mob that leaped on his back. With a stone in hand, the man clubbed at Ketan's head. It struck a glancing blow and opened a long channel of blood down the side of his face.

Reason mingled with emotion and Ketan leaned over farther, exposing his head and neck to the blows. Then as the assailant drew back for a final blow, Ketan drew out the knife in a single long arc that ended in the enemy's side. He wrenched the knife viciously out of the wound as the man fell.

There was blood covering his hand and it streamed down his face and neck. He could feel the warmth of it inside his leather shirt. All the conditioning of Kronweld fell away from him then and the redness and the smell of the blood was like a drug in his throat.

He lunged about, looking for any more who dared attack from the rear. Automatically he dodged a heavy stone and watched it drop on the other side, felling a mobster with a blow in the temple.

The horse seemed to share his own blood lust. With sharp screams it pawed the air and lunged upon the attackers. Just in time, Ketan saw a hand bearing a knife towards the horse's exposed belly and the coil of rope swept down to obliterate the face of the man that held it.

He was near enough now to feel the intensity of the flames, to see that Elta was hanging limp with her eyes closed, overcome by the smoke and the heat that billowed about her. Her dress—an idle part of Ketan's mind noted that it was her induction robes—was browned and beginning to burn. With fury that rose with the flames, he lashed unmercifully the horse's flanks. He leaned down and stabbed a man in the throat and crushed another's face with his boot.

Then the horse screamed and surged away from the flames. Ketan turned the coil again upon its flanks and reined it nearer until its forelegs rose in the air and smashed down into the burning wood, scattering embers into the mob.

He slashed out once and a portion of the bonds parted. He screamed out Elta's name to keep her from falling upon her face into the flames, but she could not hear him.

The horse lunged away again, whimpering in terror and Ketan laid open the flesh of its flanks. He drove it nearer and threw a loop about the post above Elta's head and twisted it about the pommel of the saddle.

The heat of the fire was agoniz-

ing. It seared his throat and scorched his lungs. He could smell the hair of his head and upon his arms burning.

While the mob howled in frenzied frustration he hacked at the ropes. The horse screamed and lunged in the flames until it nearly uprooted the post.

Then Elta was free. Her sudden weight as she sagged away from the post almost unseated Ketan and plunged him into the white-hot embers below. It was a superhuman effort that held him in the saddle and allowed him to drag Elta's unconscious form across the horse. He cut away the loop and burst away from the flames.

If the cries of the mob had been savage before, there was no name for the frustrated howl that rose into the night as they saw Ketan bearing the limp body of Elta away from the fire.

Renewed in insanity, they came at him again and surged about the burned and wounded flanks of the horse. Burdened now by the additional weight of the girl, the horse slowed and came to a near halt in the midst of the sea of hate.

Ketan struck out with renewed savagery, but he knew instinctively that his handicap of Elta's unconscious form was too great. It would be only a matter of moments now. They were surging forward with clubs and beat upon his legs and body and struck at the horse. His entire attention was spent diverting blows away from the still form of Elta.

He was glad with a part of his mind that this had happened before he made the terrible mistake of turning the Seeking of Kronweld over to these savages. It would be a thousand times better in the hands of the Statists than here. Perhaps the Statists were not what the Illegitimates had pretended at all. True, there was the series of incidents in Kronweld to indicate the Statists were enemies. In any event, when Kronweld did come, they would crush both Statists and Illegitimates alike.

He did not notice the other nucleus of battle and confusion until it was almost upon him. He heard the rising thunder of a bellowing voice in his ear, and the wave of mob cry slowly ebbed. He turned to see William Douglas and John Edwards battling towards his side.

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The great, rolling voice of William Douglas was surging out above the cries about him, drowning them, subduing them, all but the knot of attackers surrounding him.

William Douglas reined the horse up and brought its forelegs crashing down upon the backs of the outermost ring. His hand swung a great club about his head, bringing it down in lightning strokes that crushed skulls.

"Stop! Listen to me!" His voice bellowed. Now the thudding of his club against heads could be heard above the sound of the mob. They fell back, dazed and uncomprehending, drained of the emotion that had ignited them and wearied of trying to match the berserk fury in their midst.

The three on horseback seemed reluctant to cease their clubbing and slashing but any more would have been like beating a dead body.

William Douglas rose in his saddle. "These two have come back. Back from beyond the Selector. Do you know what that means?"

The terrified silence of the now frightened villagers was as if a sudden vacuum had appeared to cancel all sound. Then William Douglas went on in a lower voice that still carried to the outermost fringe of the gathering.

As if he sensed the thoughts that were in Ketan's mind, he said, "For three generations we have waited and hoped for the return of those who have gone through, hoping for the heritage of liberation that we believed they might bring us. Tonight you have forfeited all right to that heritage. You deserve to grub and slave for ten times three generations for this night.

"Go to your homes!"

Like a whispering, retreating wave, they dispersed so swiftly that it was almost impossible to see where they had gone. Ketan raised Elta in his arms and followed as William Douglas led the way through the deserted streets—deserted except for the two score dead that lay sprawled upon them.

The silence was like the calm on the eve of a hurricane, quiet, portentous, hot and breathless. Ketan's hate still burned. He knew that it would never die. No means of extermination would be too unmerciful for these barbarians.

William Douglas did not speak until they came to the end of the straight, narrow street to the house where he had stayed. "We will stay here," he said. "Elta will be cared for. I will get Carmen to come."

Ketan said nothing. Though the two Illegitimates had fought for him and saved his life he could not forget that they were Illegitimates and that William Douglas had only wanted to keep him from seeing the burning, until he found out who it was.

William Douglas was no less a savage than the rest of them.

There were no signs of other Illegitimates about. Ketan took Elta into the house and laid her on the crude bed. She stirred as he moved her. William Douglas bent over and examined her closely. He

saw her breathing was good.

"Overcome by smoke, but she'll be all right. Open those windows and see that she gets plenty of air. The burns on her legs will be somewhat painful for a time, but they aren't serious. I'll treat them and have food brought to us."

John Edwards merely stood against the far wall, staring out the window. Ketan saw his arm was bloodly and hanging limp. What thoughts were in the Illegitimate's mind, Ketan could not know.

William Douglas returned in a moment with materials to treat Elta's burns. He left the injuries unbandaged and turned to Ketan.

"Looks as if you need something yourself."

Ketan realized dully that the long slash on his face was sending out waves of pain, but he had forgotten it. His legs and body were bruised and cut by the blows of clubs and rocks. Silently, he submitted to William Douglas' examination and care.

He watched with a distant, objective curiosity as the marks on his body were washed free of blood, and compounds of herbs were applied and bandaged to the cuts and bruises.

It was a strange and curious procedure. If such wounds had been inflicted in Kronweld no one would have done anything to them. He would have washed them, and if they swelled and flowed with the yellow compound as they usually did he would have taken the self death to alleviate the pain, or, if he had refused that, he would have been taken to the Place of Dying and abandoned.

There was no question of mercy or pity in such treatment. It was the only possibility. The taboos surrounding the investigation of life processes had made Seeking into the possibility of repair of sickness and injury impossible.

Ketan wondered how many thousands of lives would have been saved through the simple remedies of William Douglas if the Temple of Birth had never been allowed to perpetrate its blinding restrictions upon Kronweld.

When he was through with Ketan, William Douglas set John Edwards' arm and attended to his own needs.

Carmen appeared with food that had been prepared in another part of the house. As if possessed of some guilty knowledge, she glanced abashed at Ketan and did not speak. They ate in silence.

At the end of the meal William Douglas rose awkwardly and looked at Elta. She was sleeping from the effects of the herb drug he had given her.

John Edwards had gone to his own house, but William Douglas sat down near Ketan and began speaking in a low voice.

"I don't know what you're thinking, but I can guess," he said. "I'm not going to try to explain or persuade. Perhaps I just want to hear myself talk to keep from thinking too much. Any time you want me to stop, just say go.

"What you saw tonight must have been like a knife through you. I

know, because I have lived among the Statists for so many years. Their blood lust is more refined.

"Ages ago, men used to breed animals. One called the dog, for example, was originally a wild animal with no particular characteristics except living and fighting and hunting for food. But man took individual dogs of slightly variant characteristics and bred them. After hundreds of years, there were scores of different kinds of dogs as different from each other as if they were different animals.

"That's how I think of man, himself, a huge collective animal. Every trait of gentleness, beauty, brutality and savagery is there. Ages ago we existed and survived in this welter of contrasts. All individuals realized the existence of them.

"Then Richard Simons' Selector began breeding this great animal for distinctive characteristics. The scientific and the artistic and the poetic were selected out and segregrated in Kronweld. Savagery and tyranny were left behind. But there was still something good remaining, and that, too, separated itself by its own force.

"That was the independence, the fighting love of unhampered rights to live without being owned body and mind by a tyrannical so-called superior class.

"These were the Illegitimates.

"You've seen them tonight. You've seen their hate and their blood lust. It's not them, but it's a part of them. They'll still give every particle of energy to the overthrow of the Statists and the establishment of a just and scientific way of life. But they'll demand their freedom. They prefer death to anything less, and they're savage and cruel to any who challenge their freedom. They need your science —perhaps you could use some of their vigor and independence."

Ketan did not answer. His eyes stared unseeingly before him. After a long time, William Douglas went on.

"It happened about the same way once before. The greatest pioneers and freedom loving people that ever lived upon this continent became for a time the most brutal and savage. They were among those who first founded a civilization here, but they became imbued with a rigidity and intolerance that led them to burn and drown and torture members out of their own midst merely upon accusations arising out of whims and selfishness and fear. They were called the Puritans. You will read about them in the histories in the pinnacle."

In the room next to Elta's, Ketan lay awake on the pile of skins thrown in a corner long after William Douglas had gone to sleep. He heard Elta moaning faintly and tossing about in her drugged sleep. Carmen was sleeping in the room with her.

His thoughts were upon the scenes of that night and upon the words of William Douglas. And now that Elta was here, and miraculously safe, he knew there was no great urgency to return to Kron-

weld as there was before. He could give the full powers of his attention to the commission of Richard Simons.

He wondered if he had not by accident stumbled upon the reason for Igon's failure. Perhaps Igon had discovered just in time the brutality and ignorant savagery of this world and judged it not worth returning to.

Surely that must be it.

Then Ketan recalled his own actions. He recalled the blind emotion that had poured through him in that first instant when he saw Elta, and guided him through to her. He had not believed a brain, his or any other, capable of such feeling as he had experienced that night.

Slowly, he realized what William Douglas had implied, but not stated: That within each man as well as in the race, there were all the contrasts of beauty and hate and love and savagery. He thought of the Statist hunters who flew out of the sky and burned the forest villages and killed the Illegitimates like animals for mere sport of it.

He asked himself: Was the action of the Illegitimates logical in the face of that?

The only answer he could find within him was yes.

With their ignorance, their inherited crudities of life, the hopelessness of their position, there was no other possible reaction except the most brutal retaliation of which they were capable. They were like those others of whom William Douglas had spoken, who first founded the nation that had become greatest on this land, except that the Illegitimates were in a more hopeless position.

They would have to be taught. That would be the job of the men of Kronweld, to fuse into themselves the heritage of this world of Earth, and then amalgamate with the Illegitimates to form the race of which Richard Simons and his scientists had dreamed.

His sleep was short and soon sunlight burst in upon him. He opened his eyes a moment, trying to recall the terror of the nightmare he had dreamed. Then he sat up with the sharp realization that it was no dream. Elta was here. He had fought off on entire village of Illegitimates to get to her.

There was a faint, welcome sound from the next room. It was his name upon her lips. He dressed quickly and went in as Carmen motioned from the doorway. She smiled and looked at him without condemnation.

Elta was lying where the sunlight fell upon her hair. She was smiling through the pain of the burns.

"I came, didn't I?" she said.

"Elta!"

He fell to his knees beside the bed and buried his face against her. She felt his body tremble with a great, subdued sob.

"Elta." He raised his head and repeated her name softly. "I had thought that I should never see you again. Tell me what happened; how you came here."

She looked at him hesitantly. "I

wonder . . . how much you know. Have you learned . . . everything?"

"Almost everything," he said. "Except about you—"

"I am a Statist," she said simply. The earth seemed to sink away beneath him and a cold breath swept over him.

"What does that mean?" he asked.

"Listen to me, Ketan, and believe me. For ten *tara* I have been in Kronweld. With Leader Hoult and Teacher Daran I passed knowledge and discoveries of Kronweld back to Earth and the Statists for their own uses. I saw no harm in it. I didn't realize that there were others on Earth besides the Statists who were worthy of consideration. The great masses of people —I looked upon them as do all Statists. They are considered breeding cattle for the brains that go to Kronweld to develop more luxuries and riches for the Statists.

"But then a terrible plan was conceived by the Statists. They grew to believe that they were as capable as the Seekers of Kronweld and they feared that Kronweld would soon discover the Gateway and invade Earth, wiping out their rule and their luxury. They decided to wipe out Kronweld. Only one thing more they wanted, and that was the details of the machines you use to employ atomic energies. When they are certain of their mastery of these principles, they plan to turn those forces upon Kronweld and destroy it.

"When I learned of this, I rebelled. I refused to go further. Neither Hoult nor Daran could understand what was being done on atomic principles. I was the only one of them able to understand, and they forced me to give it to them on threat of killing you because they knew I . . . that we were to make our companionship, to be married, as they say on Earth."

"You bought my life with that! Why didn't you tell me? I could have protected myself."

"No. Not from Hoult. You saw how easily he had his way with you when you appeared before the Council. It was all a farce, your appearance there. Hoult knew exactly what would happen. You could never have protected yourself from him."

"What of Matra? Who was she? When I first met her she wanted to kill you. In the Temple she told me she understood what you were doing, and that I should trust you."

"Matra was a Statist," said Elta. "She came to the Temple more years ago than anyone can remember. She was the main channel of distribution through which information came from Kronweld to the Statists. That's what we thought.

"Now I know that during all that time she was actually working against Statists, withholding information, distorting it so that Statist engineers couldn't make sense out of it. In a thousand ways she retarded the flow.

"She knew me and Hoult and Daran because we had to work with her. When she learned of the plan to destroy Kronweld, she came to you to get you to kill us. But her

time was too short to tell you everything you needed to know.

"If Leader Hoult had not interrupted you that night, you . . . you might have come up behind me while I was waiting for you and killed me."

"Elta!"

"I told Matra that I was going through the Gateway to destroy it and the Selector, sealing off the worlds forever. I convinced her that I was sincere and she gave me the ring which was supposed to protect me somehow. I don't know how, because I never got to use it."

"Destroy the Gateway! But you would not have been able to come back!"

"It would have been worth the cost. I was willing to give you up for that. I knew you could never live among the Statists. There was nothing that would keep them from their intention to destroy. I had the choice of my own happiness with you, or seeing the destruction of Kronweld. To have gone into Dark Land as we had thought to do once was a wild and wonderful scheme, but we could not have lived there. The Statists will destroy it all when they come.

"I have failed in all I hoped to do. Now . . . I don't know."

"What happened in the Temple after I left?"

"Matra was in comunication with a secret band somewhere—I don't know where—who were struggling to save Kronweld, she said. When she learned what I intended she gave her approval because she said it seemed like the only way. But she gave me the ring, which she said would protect me and take me to Igon when I passed through the Gateway. Igon—can you believe it!"

"Igon!" Ketan lifted his head and looked out, seeing for a moment in vision that slim pinnacle in the desert. "So Igon still lives," he said slowly. "Was she sure of that?"

"She seemed very sure, though it seems incredible."

"But Anetel took the ring."

"Yes. She didn't know what it was for, but she knew it was some means of protection."

"Why did you try to kill her?"

"The Statists only lately learned that Matra had turned traitor to them. They directed Anetel, my sister, to go there and take charge of the Temple after killing Matra. I found out about this too late to save Matra."

"Anetel—your sister?" Ketan exclaimed.

"Yes. We are twins. But I would have killed her to save Matra, and prevent the information on atomic applications from reaching the Statists. I had already delivered them to her and it was partly to get them back that I tried to kill her. I thought she might send them through and the Statists would attack before I could destroy the Gateway. But she sent the information through and after you had gone she sent me through, expecting that I would be seized on the other side and killed for my desertion of the Statist principles.

Incidentally, the wild story she told you about what was on the other side of the Edge was for the benefit of the other Ladies. One of them told me about it."

"How did you manage to escape?"

"It's still a mystery to me. I was seized as soon as I went through by someone I didn't know. Two men. They told me to keep still and I would be allowed to escape. They took me through the city to the outside where I was given a ship and certain flying instructions. At the spot where they directed me to go there was nothing but forest. I landed in a small clearing and then these savages seized me and tried to burn me at the stake. That's all."

Ketan frowned. "Who were the men who freed you and gave you the plane? Didn't they say anything to you?"

"Nothing. Apparently they knew somehow that you were here and wanted me to go to you. That was the purpose of the rings, I think—to bring us here. But you came anyway, and I was guided here. I don't understand it."

"Those men were probably part of Matra's—and Igon's secret organization. Would you know them if you saw them again?"

"I suppose so. Tell me now what has happened to you."

"I have found the pinnacle," said Ketan.

Elta's face paled and she sank slowly back upon the hard pillow of animal skins.

"So you found it," she said. Her voice was so faint that he barely heard her. "What did you find?"

Ketan looked at her in mystification. "Why are you so afraid of what is in the pinnacle? What do you know of it?"

"There is a legend among the Statists—ages old—that there is such a pinnacle and it contains the secrets of how Kronweld came to be. The legend says that someday a man from Kronweld will find the pinnacle and lead his people back to claim Earth and destroy the Statists who have sent them there."

"What is terrible about that?"

"Is the legend true?"

"Yes."

"And you are that man?"

"Yes . . . I don't know!" Ketan shook his head fiercely. "Igon was there before me—and he failed. There have been others, but where are they? I must not fail. I will bring them back."

"No!"

For a moment their eyes locked, fierce determination bridging the gap between them.

"That must never happen," Elta said at last, softly.

"Why? We have been robbed of the heritage of our natural world and thrust into a hot, desolate, unnatural place where even birth cannot take place. Why shouldn't we come back to claim our world?"

Elta did not answer his question. He said, "Tell me what happened there. What is inside the pinnacle?"

After a moment, Ketan began slowly, then with gathering force,

He won't dodge this-

Don't you dodge this!

The kid'll be right there when his C. O. finally gives the signal . . .

There'll be no time to think of better things to do with his life. THE KID'S IN IT FOR KEEPS—giving all he's got, *now!*

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to tell her of the trek to the rock in the desert, of the amazing library and repository of the science of a dead world, and of the mission of those who came to the pinnacle.

"The Selector was set to operate at intervals of a thousand years to draw back to it a group of those who had power to understand the plans of Richard Simons and his scientists. Igon was the first. Perhaps I am the last. How many between us—I don't know. But Igon failed. Or did he? Whether or no, the mission is mine now. I will carry it out. I am returning to Kronweld and taking exhibits from the pinnacle. They can't deny my story. They will come back with me."

"I didn't know there had been others," Elta said slowly. "I wonder what became of them. What do you think will happen when all of Kronweld comes here?"

"Why, we'll depose the Statists, remove their hold upon this world and take over its leadership as was planned for us. The Illegitimates will be with us. We will teach them our science and they will teach us—"

"—their savagery and primitiveness?"

"Their love of freedom and their strength to wait and endure and build."

"The poor fools . . . the poor, blind fools," Elta said slowly. Her eyes stared upon some faraway point.

"The Illegitimates?"

"No—Richard Simons and his scientists and Igon and you—"

"What are you talking about? Richard Simons and his group saved a world that might have died if it hadn't been for them. They transplanted it where it could grow unmolested by the degeneracy that would have destroyed it. Now it is time for that transplanting to be moved back. It has grown strong."

"No. That's just it. There is no strength in Kronweld. The kind of strength that is needed upon Earth. Can't you see it, Ketan? It would never work out. You of Kronweld must never come back. Oh, please try to see it. You are blinded by the light of this ancient false dream. It can never be anything but a dream."

"I don't understand you. I wanted to tell you this. I thought you would be glad, that you would believe in it and help."

"It would be more cruel to bring your people here than to leave them and let the Statists destroy them. I've lived in both worlds and I know.

"This world is cruel. Here men fight each other for survival and the Earth and man are always fighting each other. You saw naked blood lust last night. That is nothing strange in this world. It is a common thing. What would you men and women of Kronweld do in such a world?"

"We would teach them a better way of life."

"You are gentle. Your lives are art and music and poetry and days in your laboratories. Not in the thousand *tara* of your history is there a record of a single occurrence

of war, which is the commonest episode in the history of Earth. You say you will come and take this world away from the Statists. Don't you know that they can now turn all the force of atomic energies upon you and burn you out of existence before you can make a move?"

"We could use those forces as well as they. We can invent and build far more destructive machines than they can if necessary."

"You don't know how to fight. The sight of blood is nauseating to the strongest men of Kronweld. T deliberately inflict damage on another human being is the most incomprehensible thing in your lives. Do you think you can take such men and make bloody warriors out of them overnight? They're as gentle as children and the grown men of Kronweld could no more form an army with their mental conditioning than they could have the moment they burst out of the Temple of Birth."

"They could be trained—"

"Think of yourself. You told me how it affected you when you first struck William Douglas."

"I overcame it well enough last night. I was *glad* to kill and hurt them."

"You were insane. The sight of what they were doing to me wiped out all your conditioned restraint. It still has a grip on you, and when it lets go you are going to be sicker and more disgusted with yourself than ever before in your life. But even so, an army

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from Kronweld will have no such incentive. They will shrink and run at the first sight of destruction and blood."

"The only proof I can offer you," said Ketan, "will be the actual accomplishment of the fact."

"Suppose you should succeed in gaining power. What would you do then?"

"We would make of this world the paradise that Richard Simons dreamed of."

"What would you do with the millions whom the Statists have oppressed into submission, and with the thousands of rebellious Illegitimates? Don't answer me! I'll tell you what you'd do. You'd bring on the greatest period of anarchy and chaos that has been known since the dissolution of world governments in Richard Simons' time.

"He asked you if you were ready to govern. I'll answer him for you. You of Kronweld know nothing of government. The machine could try for ten thousand years and none of you would ever be ready. Because you have been almost all of one mind and one impulse, you have had little need of government. To take care of this small need you built the *Karildex*. No one among you is experienced in leading and forming laws and administering them.

"To bring about the world you propose you would need thousands of men skilled in leading and in forming and administering laws. As it is, you would be children trying to lead old and wise and evil adults. You would surely fail in any such attempt."

"But we shall make the attempt, at least," said Ketan. "What of Igon and Matra and the evidence of the opposition which you found?"

"I don't know. But I do know that it is too late to make any long plans. The Statists are going to act—and quickly! We must act first. We must destroy the Selector and close the Gateway. You and I will have to make our lives here as best we can."

Elta reached out and took his hand in her own. "We can be happy as long as we are together."

"I'm afraid I can't give it up as lightly as that. This is not a little thing of personal beliefs or prejudices. It's the fate of a world we're talking about. It's the fulfilling or failing to fulfill the reason for the existence of Kronweld. If we fail in this, we might as well have remained and died or have been as the Illegitimates."

"Richard Simons' dream was so terribly wrong. His selection and isolation of you produced exactly the opposite effect that he planned. Instead of making you more fit, it made you less fit for leadership on Earth. Had you remained, you might have been strong enough to lead a revolution that long ago would have freed Earth, but not now."

"You will not help me?"

She looked steadily into his eyes. "I will oppose you with all the powers I can command."

TO BE CONCLUDED.

LIGHTER MOMENTS with fresh Eveready Batteries

"Wait till he throws down some more coconuts"

IF YOU FIND your dealer out of "Eveready" flashlight batteries when you call—please understand this: Most of those we're now able to make go to the armed forces, lend-lease and essential war industries.

...you can't say it with bombs—say it with bonds. Buy those War Bonds every payday!

FRESH BATTERIES LAST LONGER... Look for the date line →

EVEREADY
TRADE-MARK

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CALVERT SALUTES A CLEAR-HEADED AMERICAN

The War Bond Buyer

His is the dream of Peace
and a Future firmly built
To stand unshaken in a nation
free and strong.
And his the gladly given dollars,
his the Bonds
To win, and hold, and shape that
bright Tomorrow!

He knows that out of Bonds
Come bombers . . . tanks . . . and guns . . .
Come the very means of life and sustenance
For those who face the enemy on
distant shores.

He buys until the limit of his purse —
and more!
Because he knows that out of Bonds —
comes Victory!

He is a Clear-Headed American!

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Calvert Distillers Corporation publishes this message
in the interest of the home front war effort